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A Clinical Lecture
ON
ISCHAEMIC MYOSITIS.

BY
SIR JAMES PURVES STEWART, K.C.M.G., C.B.,
SENIOR PHYSICIAN TO THE WESTMINSTER HOSPITAL.

(With Special Plate.)

CERTAIN injuries which in pre-war days were uncommon have become relatively much more frequent since the present war. Amongst them is the condition known as ischaemic myositis. Before referring to individual cases let me remind you of the chief points in its morbid anatomy and causation.

MORBID ANATOMY.

Ischaemic myositis, as its name implies, is an affection of a muscle, or part of a muscle, resulting from local limitation of its blood supply. It is not due to total cutting off of blood, which would result in gangrene, but the muscle fibres affected, suddenly deprived of an adequate circulation, undergo coagulation-necrosis. There is an early or premonitory stage, during which oedematous swelling occurs in and around the affected muscles. Unless the blood supply is promptly restored by removal of obstruction to the arterial flow, coagulation-necrosis supervenes, which is irreparable Later, the oedematous effusion becomes absorbed, and the coagulated muscle fibres become replaced by young fibrous tissue which rapidly contracts. Thus the affected muscles undergo shortening, become firm and doughy to the feel, losing their normal elastic consistence, until at last they are hard and board-like. Unlike most other forms of muscular atrophy, the bulk of the muscle is only slightly, if at all, diminished. Together with the muscles, the adjacent nerve trunks may have their blood supply reduced, and fibrous tissue may become deposited around them too.

CAUSATION.

A. In peace the commonest cause of ischaemic myositis is the too tight application of bandages or splints over a fractured forearm or elbow. This is the variety described in the textbooks as *von Volkmann's paralysis*. Those parts of the forearm muscles which are most exposed to pressure (and it is almost exclusively the upper limb which is affected) develop ischaemic myositis. Children or adolescents are the victims, partly, perhaps, because of the greater ease with which their arteries are compressed, but mainly, I suspect, because an adult usually insists on the loosening of uncomfortably tight bandages, whereas less attention is paid to complaints of tight constriction in a child.

B. In war the commonest cause is obstruction of the main artery of the limb by ligature. Thus, I have seen cases following ligation of the subclavian, the axillary, and the brachial artery, on account of primary wounds or of their complications, whilst in the lower limb ligation of the femoral artery sometimes produces ischaemic palsy.

C. Least frequent of all are the cases due to spontaneous obstruction of the main artery, from embolism or from thrombosis.

Let us study examples of each of these varieties.

A. *Ischaemic Myositis from Tight Bandaging.*

Here the fibrous sclerosis of the affected muscle is usually not a diffuse, but a patchy affair, occurring at the areas of maximal constriction by the splint or bandage. Above and below the sclerosed zone there may be an area of normal muscle fibres, so that the affected muscle comes to have a digastric or even a trigastric form.

Immediately following the application of the splints and bandages there is a premonitory stage of swelling of the hand, with coldness and cyanosis of the fingers. There is also acute pain in the limb, which is sometimes overlooked, being wrongly attributed to the original fracture for which the splints were applied. The oedema and cyanosis subside in a few days, but the fingers become drawn up. Then, after days or weeks, when the bandages and splints come to be removed, it is discovered that the fingers and wrist are stiffly flexed, not from adhesion in the joints or tendon sheaths, but from shrinking of the flexor muscles. Active movements of the hand are diminished or lost, and even passive extension of the fingers and wrist is impossible. The degree of flexor contracture of the fingers and wrist varies in different cases, and may attain an extreme degree. Often the thumb escapes (having a long flexor of its own), whilst the other four digits (corresponding to the flexor sublimis and profundus) are severely affected. If we increase passively the flexion of the wrist, this slackens the flexor muscles, so that the fingers can now be slightly extended. On the other hand, attempted passive extension of the wrist exaggerates the deformity of the fingers, by pulling on the shortened flexors. The affected muscles feel denser than normal on palpation.

The electrical reactions of the affected muscles in this variety of ischaemic myositis may remain normal, both to faradism and to galvanism, since certain fibres, which have escaped coagulation, retain their normal excitability. Sensory changes in this variety are usually absent, but not always.

The following are illustrative examples:

CASE I.

A boy, aged 10, fell and sustained a fracture in the region of the right elbow. He was taken to a hospital, where splints were applied, reaching from the middle of the upper arm down to the hand. The splints were not removed until a month later, when it was found that he could not move his fingers properly. Assiduous massage was tried at a second hospital but failed to produce any improvement.

He came under my observation ten months after the original injury. At that time there was (Fig. 1; see special plate) a wide dimple or indentation on the flexor aspect of the forearm, apparently in the substance of the flexor muscles, and probably corresponding to a special lump of padding within the splint. There was no cutaneous anaesthesia or analgesia. The forearm muscles, which were not wasted, were contractured, so that all the digits except the thumb were semiflexed at the interphalangeal joints, and could not be extended, either actively or passively, unless the wrist were previously hyperflexed to its full extent, when slight extension of the interphalangeal joints could be carried out. Voluntary movements of the thumb were free in all directions. To faradism all the muscles of the forearm and upper arm reacted, but less briskly than in the healthy limb. To galvanism there was diminished reaction in all the muscles of the forearm, but KCC remained greater than ACC, as in health.

CASE II.

A boy, aged 6, was riding a donkey on the sands at the seaside, when he fell off. The donkey trod on his right arm, causing a fracture of the lower end of the humerus. The limb was bandaged in a flexed position, and subsequently fixed in a rectangular poroplastic splint. Next day it was noticed by the parents that the child could not move the hand, which was swollen but not cyanosed. From the third day onwards the bandages were removed daily for purposes of massage and in order to dress a superficial abrasion on the front of the elbow, sustained at the time of the injury. Ten days after the accident the child began to complain of occasional pins-and-needles in all the digits except the thumb; this lasted for a fortnight, and then disappeared.

FIG. 2.—Case II. Anaesthesia in ischaemic myositis of three and a half weeks' duration.

When examined, three and a half weeks after the injury, there was still considerable swelling above and below the elbow-joint. An *x*-ray photograph showed the fractured humerus in fairly good position. The elbow could be moved, the biceps, triceps, and supinator longus all contracting voluntarily. All the muscles of the wrist, thumb, and fingers, however, were totally paralysed. The forearm felt dense and doughy. There was slight flexor contracture of the wrist, thumb, and fingers. When the wrist was passively extended the flexion of the thumb and fingers at once became increased. To faradism the upper-arm muscles reacted normally, also the supinator longus, but there was no reaction in the flexor muscles of the wrist, thumb, or fingers, and only a trace of response in the extensor muscles. To galvanism there was no reaction to bearable currents in any muscle of the forearm or hand.

There was an area of total cutaneous anaesthesia to cotton-wool and pin-pricks in the "glove" distribution of the hand, front and back (Fig. 2). Joint-sense was lost in the thumb and fingers, normal at the wrist and elbow.

The radial pulse was palpable at the wrist, though for the first few days after the accident it could not be felt.

This case, of comparatively recent date, differs from the first mainly in the presence of anaesthesia of the hand.

Such anaesthesia usually clears up in a few weeks or months.

CASE III.

This was an unmarried lady who came under observation at the age of 59 for epilepsy. At the age of 6 she had a fracture of the bones of the forearm. She said that the limb was for three days in tight splints, and that until they were taken off, the fingers were blue and swollen. Ever since, the right wrist had remained fixed in a flexed position, also the fingers, especially the ring finger. (See Fig. 3, in special plate.)

On examination, fifty-three years after the original injury, there was well-marked contracture of the right wrist, which was flexed almost to a right angle, and could not be extended, even passively (Fig. 3). The fingers were similarly contractured, chiefly at the terminal joints, but the thumb was freely movable. The flexor muscles of the forearm were wasted in their lower two-thirds. The surviving third of these muscles formed a distinct lump, above the upper limit of the original splint, contrasting with the atrophied part below. To faradism and galvanism all the muscles reacted briskly and normally. A radiogram of the forearm and elbow showed slight thickening in the region of the head of the radius, as if from an old fracture of its neck. There was no diminution of cutaneous sensibility.

B. *Ischaemic Myositis following Ligation of an Artery.*

In war wounds it is sometimes found necessary to tie large arteries in order to check primary or secondary haemorrhage, or to arrest the growth of a traumatic aneurysm. In some of such cases ischaemic myositis supervenes. This variety has several clinical differences from the group due to tight bandaging. Instead of having patches or zones of coagulation-necrosis, alternating with healthy zones, in the affected muscles, we find whole muscles undergoing diffuse coagulation-necrosis. The affected muscles come to have a curious hard, board-like consistence, much harder than in the other variety. Together with this, the electric excitability is often completely lost, both to faradism and to galvanism. Moreover, well-marked anaesthesia of the periphery of the limb is the rule rather than the exception, the sensory loss extending up along its outer border, but not in the territory of special nerve areas.

CASE IV.

A soldier, aged 33, had multiple wounds from fragments of high-explosive shell, including a penetrating wound of the right axilla, from a fragment which entered through the right upper arm. The fragment was located and removed, but three weeks later a deep axillary abscess developed, and at the end of the fourth week severe secondary haemorrhages occurred. The axillary artery was clamped and the subclavian artery was then ligatured. When he came under observation, in a hospital at Salonica, five months after the original shell wound, there was total paralysis of the right arm, forearm, and hand, all the muscles of the limb being hard and board-like. The only voluntary movements were feeble contractions in the right pectoral, deltoid, and latissimus dorsi, but not enough to move the shoulder-joint. The deltoid and pectoralis major shared in this board-like hardness of the musculature of the limb. The trapezius and all the vertebro-scapular muscles were normal, both in consistence and in voluntary movement.

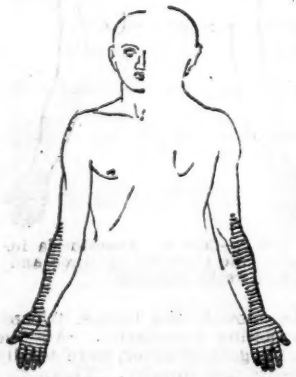

FIG. 4.—Case IV. Anaesthesia in a case of ischaemic myositis following ligation of the subclavian artery.

The elbow was semiflexed. It could be freely flexed and extended, passively, within a short range, but full flexion and extension were brought up sharp by the fibrous hardness of the muscles. All the joints of the hand were stiffly fixed in a lightly extended position, and could not be passively moved at all. There was comparative blunting to cotton-wool, with total analgesia to pin-pricks in the whole hand, front and back, and along the radial side of the forearm and elbow (see Fig. 4). Joint-sense was lost in the fingers and wrist, normal in the elbow-joint. No pulsation could be detected in the brachial nor in the radial artery. There was slight oedema of the subcutaneous tissues of the flexor aspect of the forearm and outer side of the elbow.

To faradism no reaction was obtained in any muscle of the hand, forearm, or upper arm. A few fibres reacted in the deltoid and pectoralis major; the trapezius and all the vertebro-scapular muscles reacted briskly. No galvanic battery was obtainable to test the galvanic reactions.

CASE V.

A soldier, aged 28, was handling a loaded rifle when it went off. The entry of the bullet was through the left upper arm posteriorly, at the lower edge of the deltoid; the exit was just below the insertion of the pectoralis major anteriorly, in the line of the brachial artery. Next day the brachial artery was ligatured, and the wound was still granulating when he came under observation in Malta four weeks later. The patient complained, ever since the injury, of constant aching pain in his left fingers and palm, extending up to the elbow, also of difficulty in moving the fingers and of deficient sensation in the hand.

On examination, both hands were equally warm. In the left upper limb no pulsation could be felt in the brachial or radial artery. The left elbow was stiffly semiflexed and could not be passively extended. The left triceps muscle was hard and board-like in consistence, and had no voluntary power of contraction. The other upper-arm muscles, including the biceps, were normal. The flexor muscles of the forearm were hard, fibrous and paralysed, but not obviously wasted. The extensor muscles of the wrist, thumb, and fingers were normal in consistence, and contracted voluntarily.

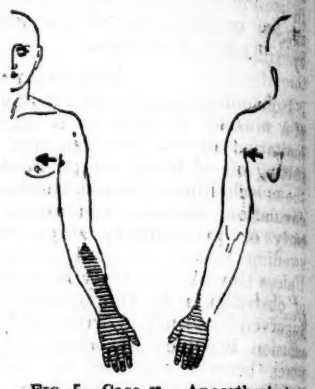

FIG. 5.—Case V. Anaesthesia in a case of ischaemic myositis following ligation of the brachial artery.

The thenar and hypothenar muscles were paralysed, but not the interossei, for the fingers could feebly be spread out in fan fashion.

To faradism, there was loss of reaction in the biceps, triceps, flexors of the wrist, thumb and fingers, and in the intrinsic hand-muscles, whilst the supinator longus and the extensors of the wrist and fingers reacted briskly. The biceps-jerk and triceps-jerk were absent on the affected side.

There was total anaesthesia and analgesia of the hand, front and back, with a strip extending along the front of the forearm on its outer aspect (Fig. 5). Joint-sense was absent at the fingers, normal at the wrist and elbow. Vibration-sense was lost in the bones of the hand.

In this case the possibility of the anaesthesia being due to a concomitant lesion of the nerve trunks, whether by the original bullet injury or later, at the time of the operation, had to be excluded. But the fact that the supinator longus and all the extensors of the wrists and digits retained their motor power was against a direct lesion of the musculo-spiral as the cause of anaesthesia of the dorsum of the hand. Moreover, the absence of muscular atrophy of the flexor muscles and their characteristic hard consistence were against a lesion of the median and ulnar nerve trunks. Finally, the distribution of the anaesthetic area closely resembled that of other cases in our experience, in which the nerve trunks had certainly escaped direct injury.

CASE VI.

A soldier, aged 22, was shot through the left upper arm. The entry wound was at the middle of the left biceps; the exit posteriorly, at the same level, an inch behind the line of the vessels and nerves. He was admitted to hospital in England, ten days later, with a localized swelling in the middle of the upper arm, with absence of radial and ulnar pulses, and considerable weakness of the left wrist and fingers. On the fifteenth day profuse spontaneous haemorrhage occurred from the exit wound. Under an anaesthetic the bleeding cavity was laid open, blood-clot was turned out, and the vessels above and below the aneurysm were ligatured. Next day the extensor muscles of the wrist and fingers were distinctly stronger. The wound healed uneventfully. At the end of five weeks it was noticed that there was total anaesthesia of the fingers, and partial anaesthesia of the lower two-thirds of the forearm.

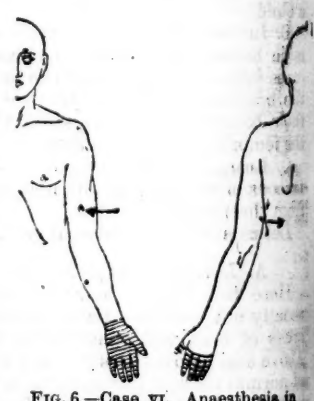

FIG. 6.—Case VI. Anaesthesia in a case of ischaemic myositis following ligation of the brachial artery.

When examined, two months after the original wound, there was anaesthesia to cotton-wool touches of the left hand,

extending higher in front than behind (Fig. 6). To pin-pricks there was analgesia from the wrist downwards, front and back.

All the muscles of the upper arm, forearm and hand contracted voluntarily, except the long flexors of the wrist, thumb and fingers, which were hard and doughy in consistence, totally paralysed, and had no reaction either to faradic or galvanic stimulation. The left hand was colder than the right. Slight blisters formed occasionally on the dorsal aspect of the terminal phalanges.

C. *Ischaemic Myositis due to Spontaneous Obstruction of a Main Artery.*

Rarest of all are the cases of ischaemic myositis following spontaneous thrombosis of a main arterial trunk. In this variety there is no direct compression of the affected muscle, nor is the artery directly injured either by trauma or by ligation. It undergoes spontaneous thrombosis as a result of extension of some inflammatory process, usually in the peri-arterial tissues. Similar arterial thrombosis may also follow an embolus, especially a septic embolus from the left side of the heart, but such patients rarely survive to show ischaemic myositis.

The following is an illustrative example of spontaneous infective thrombosis of the external iliac artery, following an intrapelvic septic process.

Case vii.

A married woman, aged 30, who had a large intrapelvic growth, was operated on at Westminster Hospital by my colleague, Mr. William Turner. The operation, which was carried out extraperitoneally, was one of extreme difficulty. To gain access to the growth one incision in the left iliac region and another in the left ischio-rectal fossa were required. Ultimately the tumour, a fibroma the size of a cocoa-nut, was successfully detached from its point of fixation to the left iliac spine, and from the vagina, bladder, and urethra, to all of which it was firmly adherent. The wound became infected, and widespread pelvic cellulitis supervened, but under assiduous and skilful treatment it slowly healed up.

Two and a half weeks after the operation pain and oedematous swelling were observed in the right foot and leg—that is, on the opposite side from the operation wounds. Next day there was pain and subjective numbness of both legs. Small superficial trophic blisters appeared on both heels. The swelling of the right leg subsided in about a fortnight, but for some time there were painful cramps in the legs, more marked on the right side.

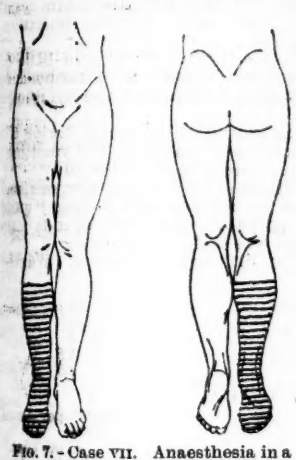

Fig. 7.—Case vii. Anaesthesia in a case of ischaemic myositis following spontaneous infective thrombosis of the external iliac artery.

Three months after the operation, on getting up, it was noticed that the right foot was specially weak. At this stage she came under my observation, when the following state of affairs was found to be present:

There was marked feebleness of the right toes and ankle, but no individual movement was impossible. The anterior tibial and calf muscles of the right leg were hard and board-like on palpation. There was slight contracture of the calf muscles, precluding the right heel from reaching the ground when standing or walking. Passive dorsiflexion of the right ankle was impossible. There was no muscular wasting of the right leg; on the contrary, the right calf measured ¼ in. more than the left. To faradism and galvanism there was loss of reaction in the anterior tibial muscles and the short extensors of the toes, and marked diminution to faradism in the peronei and calf muscles, but without polar changes to galvanism. The knee-jerks were brisk and equal. The right ankle-jerk was absent, the left was brisk. Both feet were warm, and the posterior tibial arteries were palpable at the ankles.

To cotton-wool touches and pin-pricks there was a "stocking" area of anaesthesia up to a level 2½ in. below the tubercle of the right tibia (Fig. 7). Joint-sense was lost in the right toes and ankle; normal at the knee and hip.

This case is specially interesting, inasmuch as, although the site of the original arteritis was presumably in the external iliac artery within the pelvis, nevertheless only a restricted group of muscles below the knee underwent coagulation-necrosis; moreover, the posterior tibial artery remained patent. It is possible that this was due to collateral anastomosis having restored the circulation in that artery, whilst the sural and anterior tibial branches of the internal popliteal artery remained obstructed.

In the foregoing cases of ischaemic myositis following obstruction of a main arterial trunk, it is interesting to observe that in all of them anaesthesia of the limb was also present. The explanation of this anaesthesia is not yet clearly established. It may be that the blood supply to the nerve trunks is interrupted together with that to the affected muscles. It is not due to mechanical compression of nerve trunks, for in nearly all the cases anything in the way of direct pressure—for example, by ligature—could be confidently excluded; moreover, the distribution of the anaesthesia is not that of individual peripheral nerve lesions. It is more like the distribution of an ordinary peripheral neuritis, where there is no picking-out of individual nerve trunks, but where all the peripheral nerve trunks share in the general malnutrition.

Treatment.

Various ingenious operations have been devised by orthopaedic surgeons to remedy the deformity of that variety of ischaemic myositis which results from tight bandaging and splinting, and which is usually limited to the flexors of the wrist and fingers.

In view of the mechanical shortening of the sclerosed muscles, artificial lengthening of the flexor tendons at the wrist has been tried. The disadvantages of this operation are the extensive dissection which is required and the prolonged after-treatment of the wound.

A simpler operation is one which shortens the bones of the forearm, by excising an inch, or more, of both radius and ulna, so as to allow of the fingers being placed in a position of extension and even slightly hyper-extended. The patient then has a shorter forearm but a more useful hand. The drawback to this procedure is the tendency to the formation of still more scar tissue by operating on an already sclerosed limb.

It is therefore better to attack this class of case, as recommended by Sir Robert Jones, by means of a careful and systematic stretching of the shortened tissues. His procedure is as follows:

First, the wrist is passively flexed by an assistant, thereby allowing the fingers to extend. In this position small metal finger-splints are fixed to each digit by adhesive strapping, leaving the pulps of the finger-tips exposed. Over these digital splints, either at the first sitting or a day or two later, is fixed a flat palmar splint, so as to keep the phalanges and metacarpals in line. Next, at intervals of two or three days, the wrist is gradually extended, a few degrees at a time, being fixed in its turn to a series of suitably angled splints, until at last the wrist and hand are in a position of extreme dorsiflexion. The wasted finger pulps begin to fill up; later, the power of voluntary dorsiflexion gradually reappears. Assiduous massage to the forearm muscles, hot douches, and whirlpool baths will all aid in the softening and stretching of the affected muscles. It is also advantageous to supplement these measures by local hypodermic injections of thiosinamine. By such means a considerable degree of recovery can generally be obtained, even in severe and long-standing cases, although the best results are only to be looked for in the milder and more recent case.

The diffuse hard interstitial fibrosis following arterial obstruction produces less deformity than the first variety, and is therefore less likely to become the subject of the enthusiastic operating surgeon. Here we have to make the most of such muscle fibres as survive, by means of balneological measures, massage, and passive movements. But if a muscle or group of muscles have been practially reduced to fibrous tissue, it is obvious that very little can be expected in the way of recovery of voluntary motor power.

At a recent meeting of the Waffenbrüderliche Vereinigungen Deutschlands und Österreich-Ungarns a lively discussion on tuberculosis took place. Professor Sorgo of Baden thought that typhoid inoculation stirred up latent tuberculosis and that the tuberculous were peculiarly sensitive to foreign proteins other than tuberculin; soldiers should therefore, he argued, not be sent on active service until fourteen days after typhoid inoculation, and those already known to be tuberculous should not be inoculated against typhoid fever. All these views were ridiculed by Professor Kirchner of Berlin. To prevent soldiers from being sent on active service within fourteen days of typhoid inoculation was impracticable, as the need for men was far too pressing.

SUBACUTE BACTERIAL ENDOCARDITIS.

BY

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(With Special Plate.)

WITHIN a comparatively short time five cases of bacterial endocarditis, forming an unusual group, have been admitted to this hospital. These cases do not belong to that type of ulcerative or malignant endocarditis with the severe pyrexia usually associated with this disease. They rather demonstrate certain characteristics which warrant at least four of them being placed in a category together; each of them is distinct, yet all possess certain features in common. I propose, therefore, to give an account of each case and subsequently to discuss briefly the group as a whole.

CASE I.

Aged 33; army service seven months. He had never been able to play games at school, and subsequently only did light work as a railway clerk. He had inflammation of the lungs at the age of 17. At the age of 31 he had rheumatic fever, and was in bed for a month. Five months ago he had a bad attack of influenza. He enlisted in June, 1917, had no training, and was sent almost at once to France, where he was employed as foreman of an unloading squad. He never felt well while in France; had dyspnoea, which grew worse; lost a good deal of weight, and had precordial pain. He was admitted into this hospital, under Lieutenant M. Rothschild, M.O., U.S.R., on October 13th, 1917. He complained of dyspnoea, palpitation, and precordial pain. He looked very ill and anaemic. The pulse at rest was 100. The apex beat was inside the nipple line; there was no increase of the cardiac area of dullness. There was a loud, harsh systolic bruit, replacing the first sound at the apex, the second sound in the pulmonary area was increased, and there was a definite diastolic bruit in the aortic area. The urine contained no albumin or sugar; specific gravity 1,027.

Shortly after admission he began to have pyrexia, irregular and of no definite type, varying from 99° to 102°. On November 3rd the urine contained albumin and blood. On November 21st red blood corpuscles were found in the urine with a few granular casts. On November 29th definite petechiae were seen on the left shoulder and right conjunctiva, haematuria continued, and clubbing of the fingers was noticeable. The heart was enlarged to the left ¾ in. by percussion and palpation. A loud systolic murmur was heard everywhere, especially over the pulmonary area. The spleen could be felt one to two finger-breadths below the costal margin. There was tenderness over the sternum at the level of the sixth costal cartilage.

On December 1st the blood count was: Polymorphs 73 per cent., lymphocytes, large and small, 23 per cent., transitionals 1.25 per cent., mononuclears 1.5 per cent., eosinophiles 0.75 per cent. The haemoglobin content was 65 per cent. Wassermann reaction negative. Blood cultures on October 30th, November 2nd, and November 19th were sterile. During the early part of December he had a period of nausea, vomiting, and persistent diarrhoea. On December 19th a well-marked systolic thrill was felt over the base of the heart, and on the pinna of the left ear was an Osler's node, and multiple petechiae were scattered over the legs, thighs, and arms. A painful swelling had developed over the site of the left brachial artery. No pulse could be felt in radial or ulnar arteries of this arm. On December 23rd the swelling over the brachial artery had subsided to the size of a pea and the radial pulse was just palpable. During the preceding three days the left hand had not shown any sign of circulatory disturbance, either in colour, size, or warmth. The radial pulse was not perceptible again after this date. He got rapidly worse, and died on December 28th.

Post-mortem Examination.

On the posterior flap of the mitral valve was a warty mass of vegetations about three-quarters of an inch long by half an inch broad and half an inch deep, and a similar patch on the anterior flap. There were multiple vegetations on the chordae tendineae right down to the papillary muscle. Near the edge of the valve the chordae tendineae were matted together by a mass of vegetations. There were also small cushion-like excrescences on the walls of the auricle. All these vegetations showed a tendency to heal, and small calcareous particles were seen and felt in them; on the wall of the ventricle were fine vegetations. Two of the aortic cusps were also involved from contiguity with the mitral valve on their ventricular aspect with slightly raised rough vegetations. The spleen was enlarged and fixed by adhesions to the parietes under the ribs; one section showed several large infarcts, yellow ochre in colour, raised above the surface and with a bevelled edge. These infarcts showed no sign of breaking down and were in the healing stage. Elsewhere were present more recent infarcts of a dark-red colour. The kidneys were covered with petechiae, "flea-bitten," one or two large infarcts were present, the capsules were very adherent. Microscopical examination of the kidney showed a condition of great hyperaemia, many of the tubules being choked with blood. Many of the glomeruli were affected similarly with a certain degree of leucocyte infiltration—a condition of acute glomerular nephritis. In this case the typical lesion to be discussed later was not found. Dissection of the brachial artery at and around the bifurcation was difficult owing to inflammatory adhesion to surrounding tissue. On section, a thrombus could be seen entirely occluding the main artery and extending for three-quarters of an inch down the radial and ulnar arteries. The arterial wall was considerably thickened and calcareous in parts to a level both above and below the actual site of the thrombus. (See special plate, Figs. 1 and 2.)

CASE II.

Aged 37; army service three and a quarter years. Previous occupation tailor. He was not strong as a child and played games with difficulty owing to shortness of breath. He gradually grew stronger, and when 23 years of age joined the army as a gunner. He served for eight years, and was in good health all the time. In May, 1912, he was ill in bed for four months with rheumatic fever, but quite recovered, and was still in the reserve when war broke out. He joined up in August, 1914, went to France almost directly, and had heavy work all the time. He was never wounded, gassed, or buried. His health was excellent till February, 1917, when he felt the cold weather severely. In April, 1917, he began to feel a little weak and short of breath and he noticed tender spots which appeared from time to time on various finger-tips. These spots would last two to four days, were pink in colour, appeared to be in the skin, and would then disappear, leaving a little flake of skin or "dried blood" which he picked off. He would have two or three in a fortnight and then a period of freedom from them. He continued his work until November, 1917 (a period of nine months in this condition), and then reported sick for dyspnoea and swelling of ankles.

He was admitted into this hospital under Lieutenant S. A. Levine, M.O., U.S.R., on November 16th, 1917. He was a tall, big man; he complained of dyspnoea, and looked rather anaemic, but was cheerful.

Heart.—Apex beat one fingerbreadth outside nipple in fifth space. Left border of cardiac dullness two fingerbreadths outside nipple by percussion. At apex, first sound feeble, followed by a systolic murmur and preceded by a presystolic murmur. Over the aortic area a blowing harsh diastolic murmur directly after the second sound.

The tip of the spleen was palpable and tender and a friction rub could be heard over it.

Urine.—Red corpuscles present in moderate numbers; albumin a slight trace.

On November 30th there was clubbing of fingers. Pain on pressure over the sternum at the level of the sixth costal cartilage. Definite Corrigan pulse with capillary pulsation. Mild pyrexia. Several petechiae on skin of abdomen.

December 23rd. Since the last entry there has been little or no pyrexia; the slight elevations appear to correspond to variations in the size of the spleen, which with the symptoms point to repeated infarctions.

January 4th. The patient has seemed much worse during the past fortnight. He has had attacks of diarrhoea and vomiting; complexion pale muddy colour; spleen again enlarged.

He was better on January 27th and made great progress, and on February 20th was getting up all day and feeling "quite well." The spleen was just palpable, the heart sounds were not altered; sternal tenderness was no longer present.

Blood.—Cultures on November 19th and 30th sterile. Wassermann reaction negative.

Polymorphonuclear leucocytes	55 per cent.
Lymphocytes	41 "
Mononuclears	2 "
Transitional forms	1.5 "
Eosinophiles	0.5 "

Blood count on February 28th, 1918:

Red blood cells	5,100,000 per c.mm.
White blood cells	6,875 "
Haemoglobin	45 per cent.
Colour index	0.40 "

Differential count:

Polymorphonuclear leucocytes	60 per cent.
Lymphocytes, large and small	34 "
Mononuclears	2 "
Transitionals	3 "
Eosinophiles	1 "

April 9th. Except for four days' mild pyrexia during the previous week the temperature has been normal, and he has been out walking slowly, but managing to do about two miles. During the past week a fresh Osler node appeared on the palmar surface of the right fourth finger-tip, causing pain for the first two or three days, and disappearing after four or five days. On May 7th he was so much better that he was to be discharged to his home in a week. To the casual observer there would appear to be little the matter with him.

CASE III.

Aged 24; army service three years. Previous occupation, bolt-maker. Health not good as a boy; he had scarlet fever, diphtheria, and measles before the age of 8. He has never had rheumatic fever, chorea, or growing pains. He never played games at school. Since 16 years of age he has had occasional precordial pain, dizziness, and faintness. Was refused admission into the army twice. He enlisted on November 14th, 1914, and had four months' training, riding and driving, and felt quite fit. He went to France in May, 1915, and to the front with 18-pounder gun. For one year he was free from trouble, then symptoms appeared without apparent cause, but he carried

on till November, 1917. For six months he has had tender spots occurring on various finger-tips, lasting two to four days. He had no other illness while in France, and was not wounded, gassed, or buried.

He was admitted into this hospital, under Captain R. Jamieson, C.A.M.C., on December 12th, 1917. He looked pale and ill, and complained of palpitation, dyspnoea, and sharp stabbing precordial pains. Pulse at rest 116.

Heart.—Apex beat: very diffuse rolling pulsation in fifth and sixth spaces, 12 cm. from mid-line. Area of dullness definitely enlarged, extended 4 cm. to right and 12 cm. to left of mid-sternal line. No submanubrial dullness. A systolic bruit at apex and also in aortic area, full diastolic mumble at apex, soft diastolic bruit in aortic area. Marked pistol shot and good Duroziez's sign on auscultation over femoral artery.

January 3rd. The spleen was enlarged, but varied in size, and synchronously with the enlargement some increase of pyrexia occurred. Tips of fingers showed clubbing. He woke up yesterday with loss of vision in left eye. The optic disc was normal, but just outside it, in one of the divisions of a main artery, a small node could be seen; external to this was a large area of anaemia through which ran the artery in question. Vision was lost in the upper nasal quadrant of the field. On February 20th the retinal condition cleared up entirely, and sight was restored, but the patient has been going downhill from heart failure. A general oedema has set in, beginning in the face and extending to the pleural cavities, back, abdomen, and legs. Liver and spleen much enlarged. Multiple petechiae over chest and abdomen. There was albumin in the urine, and the urinary output was only one-half the fluid intake. Diuretin and digitalis had no effect on excretion. A presystolic bruit could be heard in addition to those mentioned.

A blood culture on December 31st, 1917, was sterile.

Blood count:

Total red cells	4,920,000 per c.mm.
Haemoglobin	60 per cent.
Colour index	0.67 ,,

Red cells are normal in size and shape.

Differential count:

White cells	14,200 per c.mm.
Polymorphonuclear neutrophiles	50 per cent.
Polymorphonuclear eosinophiles	1 ,,
Large and small lymphocytes	47 ,,
Transitionals	2 ,,

The patient became more and more water-logged, and died on February 23rd, 1918. No autopsy was allowed.

CASE IV.

Aged 33; service nine and a half years. As a child was fit, and played all games; he worked as a shoemaker till he joined the army, nine and a half years ago. He served in India and Malta and has led an active life, taking part in boxing, running, and football. He has never had rheumatism, chorea, or tonsillitis, and denied venereal disease. There was no tuberculous family history. He went to France on November 4th, 1914, worked as a shoemaker in the trenches for over three years, and was in excellent health till four months ago. He then had "rheumatism" in the legs, which swelled; he had medicine and carried on for three months longer. He then complained of pains in the chest with dyspnoea, and reported sick.

He was admitted to this hospital, under Lieutenant S. A. Levine, M.O., U.S.R., on January 10th, 1918. He complained of precordial pain and dyspnoea, and looked pale and fatigued.

Heart.—Apex beat in nipple line, a definite presystolic thrill at apex. Blowing systolic murmur at apex, also diastolic and presystolic murmurs ending in sharp first sound.

Urine.—Albumin slight trace, frequent granular and cellular casts, many red and white blood corpuscles.

Spleen enlarged and palpable. A few petechiae on abdomen and neck.

February 1st. On flexor surface of right wrist is a red patch of inflammation, tender on pressure, through the centre of which passes the radial artery. Pulsation can be felt in the artery above and below the swelling. Its size is about 2 in. in diameter. February 5th. The swelling has disappeared except for a small nodular lump definitely surrounding the radial artery. February 18th. Mild pyrexia has been present since the last entry. Two days ago there was pain in both popliteal spaces. To-day an area of inflammation is present over the left popliteal artery rather larger than, but otherwise similar to, that observed over the left radial artery. Pulsation cannot be felt in the arteries of the leg or foot, but there is no appearance of circulatory occlusion in the limb. Two successive crops of petechiae on abdomen were observed during the past week, lasting about forty-eight hours.

Blood Culture.—Very fine Gram-positive coccus found in pairs, a few showing signs of short chain formation.

Blood count, February 10th, 1918:

Total red cells	3,800,000 per c.mm.
Total white cells	9,000 ,,
Haemoglobin	50 per cent.

Differential count:

Polymorphonuclear leucocytes	57 per cent.
Large and small lymphocytes	36 ,,
Transitional forms	3 ,,
Eosinophiles	3 ,,
Mast cells	1 ,,

February 20th. Acute pain over the left scapula and an inflammatory swelling about 2 in. in diameter, very tender on pressure, can be seen.

March 9th. All local tenderness has now disappeared from the scapula and the popliteal space. The left popliteal artery, however, as well as the right radial are appreciably thickened and quite incompressible, and feel like a piece of pipe stem about ¾ in. to 1 in. in length. The temperature now ranges between 98° and 99°, and the patient appears to be improving greatly.

April 9th. About two weeks ago the patient had a short but sharp attack of left lobar pneumonia lasting some six days. The temperature came down very rapidly and since then has been normal for ten days. His condition is very fair and he gets up daily for two hours.

May 7th. Condition still very fair, but he has not been allowed to get up for the last two weeks owing to mild pyrexia and troublesome cough.

CASE V.

Aged 21; service four and three-quarter years. Previous occupation drill finisher. Had one serious illness at 5 years of age (quinsy or diphtheria), but otherwise had always been fit and active; he had one or two sore throats, but never went sick with them. Played football and cricket up to joining the army. He was called up for service in August, 1914, stood the training well, went to France in June, 1915, and was quite fit all the time. In May, 1917, after a long period in the trenches unrelieved, he felt a pain in his chest and palpitation; he reported sick, but went back to duty. He had another similar attack in October, 1917, but got better. At Christmas, 1917, he had a sudden acute pain in the left thigh while asleep, and was admitted to a casualty clearing station for sciatica; the pain then occurred in the calf of the same leg and afterwards got better. He was transferred to a base hospital, and on January 14th, 1918, had a similar sudden pain in the right axilla, with swelling of hand and forearm. He said that during the past six months he had had five or six attacks of local tenderness in the palmar surface of the tip of the right forefinger. The pain lasted two or three days and subsequently a minute particle of skin flaked off. He was admitted to this hospital on January 18th, 1918. He was a fine tall lad; the face was flushed and he was sweating profusely, but, apart from the pain in the arm, was in no discomfort.

Heart.—Apex beat internal to nipple line in fifth space. At apex a blowing systolic murmur with a rough late diastolic murmur preceding it. At left border of sternum, at level of third costal cartilage, a blowing to-and-fro murmur. At the edge of the right axilla a painful swelling was present over the site of the upper end of the brachial artery, about 2 in. in diameter. The lower brachial and radial pulses were present, but much diminished in volume. The hand and forearm were slightly swollen.

January 27th. All obvious swelling has disappeared, and the brachial artery can be felt thickened for about 1 in. in length. Strong pulsation is present in the lower end of axillary artery, but suddenly ceases at the lower edge of the pectoral muscle. Pulsation is then felt feebly in the brachial artery at the lower third of the arm. Wassermann reaction negative. On January 27th he complained of pain in the sternum, radiating down the left arm, and on January 29th, at 3 p.m., a spasmodic and uncontrollable cough commenced, and continued without cessation. The inspiratory murmur was high-pitched all over the lungs, but there were no other adventitious sounds; morphine gr. ¼ was given at 6 p.m. and again at 8 p.m. The patient became drowsy, but extremely restless, and appeared to be struggling for breath. At 9 p.m. the lungs were full of secretion, and at 9.30 he began to cough up frothy blood. He died at 10.30 p.m.

Post-mortem Examination.

The *lungs* were almost black in colour and completely filled with blood and mucus. No *ante-mortem* thrombi or emboli could be found in the pulmonary vessels.

Heart.—Aortic valves crumpled, with shrunken, calcareous, and thickened edges to the cusps. Hanging on to these were multiple stalactitic vegetations, ⅛ to ¾ in. long, in parts calcareous. The edges of the mitral valve showed slight old thickening. Recent small infarcts in the spleen. Kidneys very lobulated and showed glomerular inflammation on section.

The brachial artery on section was much thickened and its channel was narrowed at one place—the site of the recent embolus—and definite ulceration could be seen here on the lining membrane of the artery. Microscopical examination of the kidney showed a glomerular nephritis, but also a considerable degree of cloudy swelling of the tubular epithelium. The condition was one of general parenchymatous and glomerular nephritis. In this case, as far as investigation has proceeded, no typical lesion, such as described by Geo. Baehr, was found.

Particular attention should be given to certain of the foregoing symptoms.

1. *Ephemeral spots* of painful nodular erythema. This lesion was first described concisely by Sir William Osler[1] and subsequently at some length by Parkes Weber.[2] I cannot do better than quote from the latter article.

Osler's spots vary considerably in size—from about the size of a pin's head to that of a small pea—and may or may not be raised above the general level of the skin. They also vary in colour. . . . The smaller and redder of the spots, which are, I think, generally seen on the fingers, probably arise when the

inflammatory focus is very superficial, whereas the larger and less highly coloured tender lumps occur when the inflammatory focus is rather more deeply seated, and are more decidedly felt as distinct nodules in and under the skin. . . . When they first appear they are tender and associated with slight diffuse redness and swelling, but in two or three days the pain, together with the surrounding flush and swelling, passes off, leaving a small erythematous point behind, which is not necessarily raised above the general level of the skin about it.

In such cases the infective agent (whatever microbe it may be), though pyogenic in nature, seems unable to excite actual suppuration in any (or in most) of the embolic infarctions which result in the skin or elsewhere.

Parkes Weber considers these tender spots practically diagnostic of the condition which he terms "endocarditis maligna lenta." The spots themselves last some four to five days, the tenderness only about two days. These spots were recorded in Cases II and III (and with some doubt in Case V) and had recurred for some months (at least six months in Case II) before admission to the hospital. The patients paid less attention to the spots than to the fact that their finger-tips were on occasions tender when handling anything. Cases II and III stated that some days after all the tenderness and swelling had disappeared they were able to pick the so-called scab off the fingers. The usual site of these nodes is on the finger-tips or palmar surface thereof. They have been noted on the thenar and hypothenar eminences. In Case II a node appeared on the pinna of the left ear.

2. *Petechiae* were seen in all the cases in varying degrees and at different times. In Cases I and III they occurred in showers, being scattered freely over the chest, abdomen, and thighs. In Case IV they have been infrequent, only one or two occurring at a time. They vary in size from the minutest puncture to a pin's head and last from two to four days. They are not necessarily observed by the patient.

3. *Splenic enlargement* was present in all the cases on or soon after admission to this hospital. The degree of enlargement varied with and in each case. At one period the spleen could be felt one or more fingerbreadths below the costal margin, at another the spleen might no longer be palpable. The patients complained of a good deal of pain over this organ, and a rub could sometimes be heard on auscultation.

4. *Fever.*—In no case was the pyrexia severe. In Case I the temperature reached 102° on three occasions only and chiefly varied between normal and 100°. In other cases, except for short periods of mild pyrexia apparently due to a recent embolic process, there were long periods of apyrexia, so that without daily, preferably four-hourly, observation, it would be quite easy to overlook the presence of these occasional elevations of temperature.

5. *Emboli.*—Cases I, III, IV, and V have demonstrated the occurrence of arterial embolism in a degree which is most unusual and worthy of record. It should be noted that neither in the organs nor in the vascular system do these emboli give rise to any suppurative process, although considerable inflammatory reaction ensues in the vessel itself and in the surrounding structures, including the skin. The minute embolus appears to lodge in the lumen of a small branch of the main vessel, and the subsequent inflammation may or may not lead to occlusion of the artery. If occlusion occurs, it is at a period of seven to ten days after the original injury, when all the surrounding inflammatory process has subsided and the vessel wall can again be felt. The terminal result is to leave the whole of the damaged vessel much thickened and as hard as a pipe-stem. The following is a summary of the various arterial emboli that have occurred in these cases:

CASE I: At the bifurcation of the left brachial artery.
CASE III: At a branch of one of the left retinal arteries.
CASE IV: (*a*) In the right radial artery at the wrist; (*b*) in the left popliteal artery in the bend of the knee-joint; (*c*) in a branch of the left suprascapular artery.
CASE V: (*a*) In the left femoral artery; (*b*) in the left posterior tibial artery, in both instances before admission to this hospital; (*c*) at the junction of the right axillary and brachial arteries.

It is interesting to note that pulsation is often felt distally to the site of injury subsequent to a period of complete occlusion. This may be due to collateral circulation being well established, or else to a canalization of the thrombus, which process has been described.

6. *Haematuria.*—This has not been marked in any of these cases. It is essential first to centrifugalize the urine, and even then the number of red blood corpuscles in the field may only amount to three or four, or may be greater in number.

7. *Colour of Face.*—Cases I to IV all exhibited a considerable appearance of anaemia; even Cases II and IV, who are doing very well, are still anaemic in appearance. Cases I and III were of a café-au-lait colour for a considerable period before death ensued. A remarkable feature is the sense of well-being which these patients possess, even in the fatal cases, up to a short period before the end. Cases II and IV state that they feel quite well. There was noticeable, however, a condition of progressive weakness unperceived by the patients themselves.

Special attention should be given to the extraordinary length of time during which these patients were leading strenuous lives at the front after the first manifestations of the disease appeared.

Cases II and III noticed the tender finger-tips occasioned by Osler's nodes six months before reporting sick. Case V began to be short of breath on exertion seven months before he had to give up his duties in the front-line trenches. Previous to this he had been perfectly fit. In each of these three cases the disease, although manifestly present, did not prevent the patient from carrying on his full military duty at the front.

Blood Cultures.

Unfortunately only one case (IV) gave any cultural reaction. The growth was a coccus, Gram-positive, occurring in pairs, but also showing a tendency to short chain formations of 5 to 16. The growth was not subjected to tests—for example, the bile and sugar test, etc.—which might have fixed the identity more accurately. The coccus, when in pairs, appeared to have a surrounding halo, but no definite capsule, but here again the special capsular stains, such as those described by Buerger, were not used. Negative results in the other cases may have been due to faulty technique or to the cases being bacteria free. In Case I scrapings from the valve vegetations showed a Gram-positive coccus, which should have been capable of growth from a blood culture during life. Apparently the organism, being of a very low pathogenicity, is difficult to grow and requires certain media and other special measures of technique for its development and recognition. It will be understood that such minute, extensive, and frequent investigation as is necessary is almost impossible at this time, especially in a hospital not supplied with a pathological laboratory of its own.

Parkes Weber, in the article quoted, describes those cases of endocarditis which show Osler's nodes as endocarditis maligna lenta. Some similar cases have also been described by Horder.[3] But Libman[4] of New York states that these spots or nodes of Osler are pathognomonic of a particular type of endocarditis which he terms "subacute bacterial endocarditis." He made a special study of this type of endocarditis and separated it as a definite entity from all other forms due to pneumococcus, influenza bacillus, gonococcus, etc. Down to May, 1912, he had collected 171 cases, in all of which were found the characteristic coccus, which he calls *Streptococcus mitis*. Further, in subsequent papers, he described three different stages of the disease—namely, (1) the bacterial, (2) the bacteria-free, and (3) the healing. The second and third conditions often co-exist. Brief mention should be made of the last two stages. The disease is of a chronic character and shows a tendency to recovery so far as the bacteriaemia is concerned, so that at a certain stage the particular coccus is no longer to be found in the blood stream. The patient then only suffers from what might be termed the sequelae of the disease, progressive anaemia, embolic infarction of greater or less degree, and their consequences. According to Libman, however, an important condition present in all these cases, is a particular form of glomerular nephritis, originally described by Loehrlein and Gaskell and subsequently by Geo. Baehr.[5] This condition was present in 23 out of 25 cases of this disease diagnosed during life. It was absent in 54 cases of endocarditis due to other organisms. The lesion, shortly described, is minute embolic infarction of the glomeruli, with subsequent swelling and hyaline change. The lesion may involve either a part or the whole of a glomerulus and the condition may be present in 2 per cent. to 75 per cent. of the total number of the glomeruli. Rarely, it may happen that

FIG. 1.—Case I: Aortic valves and ventricular aspect of mitral valve.

FIG. 2.—Case I: Mitral valve and wall of left auricle.

FIG. 3.—Case IV: Aortic valves and ventricular aspect of mitral valve.

FIG. 4.—Case IV: Mitral valve and wall of left auricle.

SIR JAMES PURVES STEWART: ISCHAEMIC MYOSITIS.

(See p. 151.)

FIG. 1.—Ischaemic myositis of 10 months' duration, showing contracture of flexor muscles of wrist and fingers, with wasting in their lower two-thirds.

FIG. 3. — Ischaemic myositis of 53 years' duration, showing inability to extend wrist or fingers, also wasting of muscles in lower two-thirds of forearm.

W. A. CHAPPLE: A MODIFIED STOKES-GRITTI AMPUTATION.

(See p. 158.)

FIG. 1.—A Stokes-Gritti in which the quadriceps had been cut and the edges stitched with catgut only.

FIG. 2.—A Stokes-Gritti in which the quadriceps had not been cut.

LIONEL J. PICTON: ATTEMPT TO BREED TUBERCLE-IMMUNE CATTLE.

(See p. 157.)

FIG. 1.

FIG. 2.

the embolic lesions are not found and the patient then has an atypical glomerular nephritis.

In the cases I have recorded, the seven outstanding features noted are those described by Libman as being peculiarly associated with this type of endocarditis. The *post-mortem* appearances of Case I were identical with Libman's description. The type of the vegetations, the involvement of chordae tendineae, the growth of fine vegetations on the wall of the ventricle, the particular features of the splenic infarcts, all are in complete agreement.

Those on the staff of this hospital, who have seen many cases of this type of endocarditis, are convinced of the identity of Cases I to IV. Case V must remain in doubt unless further investigation proves more conclusive. No one case has been proved up to the hilt. Case I lacks the discovery of the particular organism in the blood during life. In all other symptoms and in *post-mortem* appearances it is conclusive. Case II, from its course and from the extraordinary improvement, almost recovery, present to-day, is probably a bacteria-free case with healing processes going on. Case III might have been either bacterial or bacteria-free. Unfortunately no autopsy was permitted. Case IV gave no history of the occurrence of Osler's nodes; and he alone gave a blood culture of a coccus, of a type not specified; subsequent investigation of the blood proved negative. Case V is doubtful. Sections of the kidneys show extensive glomerular nephritis, and in one or two glomeruli suggestive but not conclusive lesions have been found. The same condition was also found in the kidneys of Case I. It will be understood that when a low percentage of glomeruli is involved the necessary examination must be very extensive.

But the main object of this account is to put on record five cases of endocarditis of unusual form and of great interest. It is impossible to affirm that these cases do or do not belong to the group described by Libman, but the evidence, though not conclusive, greatly supports this view.

Postscript.

This report was completed and about to be sent to press when Case IV died very suddenly.

He had recovered from his attack of pneumonia, but on May 5th was attacked by a brief but sharp epidemic which had invaded this ward. For twenty-four hours he had a temperature of 102° to 104°, with increasing dyspnoea and pulse-rate, but died quite suddenly of heart failure.

A partial *post-mortem* examination was made. The heart was slightly larger than normal. The mitral valve was contracted and only just admitted the passage of the forefinger through it. On laying open the mitral valve it was seen to be affected in its whole extent. Its fringes were thickened and contracted and covered with minute vegetations with little calcareous granules interspersed. There were four larger nodules, the size of a large pea, quite hard and calcareous. The vegetations had spread down the chordae tendineae, which were also very shrunken and in many cases broken, the ends lying free. On the wall of the auricle was a sessile patch of what appeared to be a healed ulcerative process. On opening up the ventricle and aorta, the ulcerative process can be seen to have extended to the ventricular aspect of the mitral valve, which appears eaten away, and a small vegetation can be seen on each cusp of the aortic valves. (See special plate, Figs. 3 and 4.)

The spleen was very large, measuring 6 in. by 4 in., but containing only one recent infarct. The kidneys were larger than normal, the surface scattered over with fine petechiae. The capsule, however, stripped easily and there was little sign of acute inflammatory change. The left kidney contained one old infarct, yellow ochre in colour, cheesy in consistency, and about half an inch in diameter, with an appearance very similar to the old infarct in the spleen of Case I.

The right radial artery was dissected out at the site of the old lesion; it was much thickened and stood widely open on section. It was found to be completely occluded for a length of about half an inch.

Cultures were taken from the blood of the heart before it was opened. A Gram-positive coccus was grown therefrom on legumen glucose agar. This coccus was identical to that found in the blood of this case during lifetime. It was Gram-positive, occurred in pairs or in short chains of 6 to 14, but, like its forerunner, all attempts to grow subcultures from it failed, so that any further identification was impossible.

Microscopical sections of the kidney failed to reveal any definite alteration in the glomeruli, nor was there any evidences of inflammatory change save for some cloudy swelling of the cells of the tubules.

In this case the *post-mortem* appearance of the mitral and aortic valves and of the distribution of the vegetations over the chordae tendineae and the wall of the auricle confirm the diagnosis previously made.

My thanks are due to Captain W. Scott, R.A.M.C., of the Pathological Department, Colchester Military Hospital, for his invaluable assistance in the investigation of Case IV, and also to my colleagues on the staff of the Military Heart Hospital under whose care these cases came on admission and to whose skill the credit of the original diagnosis should be ascribed.

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[1] Osler, *Quart Journ. Med.*, vol. vi, 1912-13. [2] Parkes Weber, *Quart. Journ. Med.*, vol. vi, 1912-13, p. 384. [3] Horder, *Quart. Journ. Med.*, vol. ii, p. 289. [4] E. Libman, *Transactions* Seventeenth International Congress of Medicine, London, 1913 (this gives also an extensive reference to other articles). [5] Geo. Baehr, *Amer. Journ. Med. Sciences*, 1912, vol. 144, p. 327.

AN ATTEMPT TO BREED TUBERCLE-IMMUNE CATTLE.

BY

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(With Special Plate.)

THE best way to get tubercle-free milk is to get it from animals which are not suffering from, and are not prone to suffer from, tuberculosis. If there were, or could be, bred a race of cattle as immune as goats appear to be, that ideal would be realized. The shorthorn cattle, which form the bulk of the beef and milk-producing stock in these islands, are probably about as prone to tuberculosis as are human beings. The proverb "Every one has a little bit of tuberculosis" is as true of the shorthorn cattle as of man.

Kerry cattle are far less prone to the disease. Possibly the conditions of their housing in Ireland have for generations been such that every cow that could die of tuberculosis died of it long ago. Possibly the opposite is true, and it is their hardy life in the mountains that has conferred the relative immunity they enjoy. It is a relative immunity only; but they are believed to be more resistant than any other of our domestic breeds. They are good milkers. The milk, having a finer cream emulsion than the shorthorn's milk, far finer than the Jersey's milk, is very suitable for children. The percentage of cream is usually very good. But the Kerry could never supplant the shorthorn for the double purpose of producing beef and milk. They have not the requisite qualities for conversion into a "big lump of beef," when turned off and fattened for the butcher after several lactations.

The question arose whether these tubercle-resisting Kerrys could be bred with any other race of cattle which would confer the desired qualities of size and beef production, and could that be done in such a way that the type created by the cross could be perpetuated as constant—as a new and permanent breed? Above all, could that be done without weakening their powers of resisting tuberculosis?

The problem is so to mate and cross the Kerry as to produce a tubercle-immune animal of the shorthorn type.

The domestic cattle of this country from which the shorthorns came are believed to have been derived from two primitive breeds—a smaller, black or dark brown kind, and a larger rough-coated white kind. The Kerrys represent the former more closely than any surviving race. The few remaining herds of white park cattle represent the latter; indeed, they are the primitive indigenous white cattle, modified only by the results of inbreeding through many centuries.

These English white park cattle were once of great size. They roamed wild in the forests in the centre of the island from the highlands to Sherwood. The Cadzow herd survives at Hamilton, and the famous Chillingham herd in the border country. The Blackburn herd has been extinct for three centuries, though white wild bulls still support the family coat-of-arms. The Lyme herd forty years ago was reduced to four. The Chartley herd was decimated a little later, by tuberculosis it is said. The Gunton herd in Norfolk was once famous for its enormous bulls. There is a Cadzow bull and also a Chillingham bull at present in the Zoological Gardens. Both are small—about 4 ft. to the chine—useful beef-producing animals, but not big enough to mate with the Kerry to bring that race up the shorthorn standard.

Probably the largest surviving type is the herd at Somerford Park. That place lies in Cheshire, about midway between Lyme in the same county to the north and Chartley in Staffordshire to the south; each is a few miles westward from the foothills of the Pennine chain. Though such near neighbours of the Chartley herd, the Somerford cattle appear to be highly immune from tuberculosis. The family of butchers which has dealt with the offcasts of this herd for the last sixty years has never known tuberculous disease to be found in the carcass of a slaughtered Somerford beast. Tuberculosis abounds in the shorthorn cattle of the neighbourhood. A further instance of their natural immunity may be mentioned. At the time of the cattle plague (rinderpest) some half-century ago, a farmer near Somerford had acquired a white park cow from his landlord, which stood in the cowsheds amongst forty-seven shorthorns. The plague carried off all the forty-seven shorthorns but left the Somerford cow in their midst unaffected. No cases of the plague occurred in the white park herd itself.

Deep-chested, large, handsome cattle, better milkers than any other known white park herd, the Somerford breed is particularly suitable to mate with the Kerry in the suggested attempt to obtain a type of animal which will show the milk and beef qualities of the shorthorn without its liability to tuberculous disease.

The experiment is being made. The first photograph (Plate, Fig. 1) shows the ingredients of the proposed new breed, Kerry heifers running with a young white park bull from the Somerford herd. The black ears and muzzle of the latter will be noted, and also that he is hornless, a characteristic of this herd. The Hamilton herd once was hornless, but now has acquired horns. Otherwise white park cattle are horned. The second photograph (Plate, Fig. 2) shows a fine bull of the crossed breeds, Somerford-Kerry, aged 2 years and 5 months.

The proposal is to establish the breed by interbreeding first-cross bulls and heifers. The reality or otherwise of their claims to immunity from tuberculosis can only be tested by much experience with great numbers of animals so produced. Meanwhile, this preliminary record of the experimental work which is being attempted may be of interest. The enthusiasm and great stockbreeding experience of Mr. Charles Sproston and the loan of the Somerford bull by Sir Walter Shakerley have made the experiment possible.

On June 26th I heard that the bull of the crossed Somerford-Kerry breed reacts to the tuberculin test. His temperature rose to 104.4°. The test was carefully conducted, the animal having been tied up for two days previously to get him contented in captivity. There is not the slightest other sign of disease; on the contrary, the animal is in magnificent condition.

The following is the view to which I incline as to the difficult fact that the tuberculin reaction is positive sometimes in animals which are otherwise apparently sound, or which, as Mr. Robert Mond has shown, continue in sound health for their full span of life subsequently. Assuming that the test accurately reveals the existence of a tuberculous infection, immunity is shown by the fact that the animal does not succumb to the attack. No animal is immune from attack. What must be sought is a type of animal which shows successful resistance to attack.

A MODIFICATION OF THE STOKES-GRITTI AMPUTATION.

BY

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(With Special Plate.)

The human heel is Nature's stump. Every surgeon doing an amputation or a reamputation on the lower limb should try to reproduce it.

Syme's amputation is the nearest reproduction, and the Stokes-Gritti operation comes next.

Every stump should be fashioned where possible in the hope that it will bear upon its end some amount of the body weight; and every stump should be asked by the limb-maker to bear what share it can—it may be the whole weight, as after a Syme or a Stokes-Gritti operation, or it may be one-half, one-quarter, or one-eighth. As time goes on the share will probably progressively increase. This gives a sense of compactness and stability to the limb, as well as a wider distribution of the burden. But so many failures have attended the Stokes-Gritti operation that it is not much in favour. I have the *x*-ray plates of five failures before me as I write.

One cause of failure is the displacement of the patella upwards by the pull of the quadriceps extensor. Another is the presence of pegs and other means to fix the patella down in order to resist this pull.

In recent cases I have cut the quadriceps attachment to the upper edge of the patella completely across, and then stitched the margins of the patella with catgut to the edge of the periosteum round the end of the femur. One or two additional deep catgut sutures will usually be sufficient, and a firm "button suture" through the skin flaps will make assurance doubly sure. This course was followed in the case illustrated in Fig. 1 (special plate), while the ordinary method was followed in that shown in Fig. 2.

AN ACID-FAST BACILLUS OBTAINED FROM A PUSTULAR ERUPTION.

BY

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The bacillus was cultivated from chronic intractable pustules covering the back, buttocks, and thighs of a soldier returned from France. No micro-organisms were seen in the pus, and none could, at first, be cultivated from it. But subsequently there was grown, on more than one occasion, the acid-fast bacillus which is the subject of this note.

The patient, aged 24, was wounded in the foot; he returned home on a boat which was torpedoed and sunk in the early part of 1917. After being in the sea nearly an hour he was picked up and brought to England. The wound in the foot at first healed, but subsequently broke down again, and two operations had to be performed. For a fortnight he was treated in the 1st Eastern Hospital, Cambridge, by continuous immersion in the bath. It was about a month after this that the eruption was first noticed.

On February 27th, 1918, when first seen by me, the eruption had already been in progress for about eight months. During this period the man had been at a convalescent hospital, for the most part up and about. But he had been far from well, and at times confined to bed with sickness and giddiness. He appeared to me to be in good general condition, but had a somewhat dejected air, and moved slowly.

Back and buttocks were covered with swellings of various sizes and different stages of development; some were simply old red scars, others were just pointing and were much raised and indurated, measuring perhaps as much as an inch at their bases. From one of these was obtained a stringy pus, in quantity larger than one would have expected. What particularly struck me was the exceedingly chronic character of the inflammation and the deep-seated position of some of the lesions; for the most active pustules, though somewhat painful and tender to the touch, caused far less trouble than an ordinary boil, and spots which were watched from time to time seemed to make little appreciable progress. Moreover, there were a few swellings, distinctly fluctuating, which were completely subcutaneous, and over which the skin could be freely picked up.

The patient was sent to me because the pus contained no bacteria visible under the microscope, and no micro-organisms—except a few staphylococci and once a diphtheroid bacillus, thought to be adventitious—could be cultivated from it. It was obvious, therefore, from the first that I had to do with lesions which were not those of ordinary suppuration, and a Wassermann test was carried out to clear the ground. The result was negative.

The pus was examined by me on several occasions, and various methods of staining were used, but no bacteria were ever seen in it, even when the stain was that used

for acid-fast bacilli. The pus differed entirely from tuberculous pus, the cells being well formed, and showing little sign of degeneration, being unusually clearly defined, but containing, I thought, more nuclear fragments than usual.

Cultures were attempted on various media. No visible growth appeared on egg or blood agar, or on ordinary agar cultivated anaërobically; but on agar in the presence of air five rather large cream-coloured colonies appeared, and these were found to consist of long slender bacilli. Subsequently the same bacillus was obtained in impure culture from an aërobic egg tube.

The bacilli stained well by Gram's method. When so coloured they were further treated with 5 per cent. acetic acid to see whether they possessed polar bodies. The only effect of this treatment was to bring out an irregular segmentation of stainable material, like that seen in bacilli of the diphtheroid group. Polar bodies were probably present, but they were not definitely revealed.

The resistance of the Gram-stained bacilli to decolorization with 5 per cent. acetic acid, their segmentation like diphtheria bacilli, and the fact that they were but feebly coloured with methylene blue, led me to try their acid-fastness, with the result that when stained with carbol-fuchsin, after the manner used for phthisical sputum, they were found to resist decolorization just like tubercle bacilli.

It has already been mentioned that the colonies grown from the pus were few in number. It is probable, therefore, that the bacilli were not numerous in the pus, and it is for this reason, we may suppose, that they were not detected by microscopic examination.

The small number of colonies which grew on the original tubes, coupled with the failure to render the bacillus visible in the pus itself, and, I must add, a superficial resemblance of the cultivations to those of the fish-tubercle bacillus (which I happened to have growing among my stock cultures), raised at first a suspicion that the new cultures might after all be nothing but the above-named species, got by some extraordinary accident into my plate cultures. The suspicion, however, proved unfounded, for the cultivation was repeated on more than one occasion from different pustules, and each time the same acid-fast bacillus was grown as on the first occasion.

Moreover, grown side by side with the fish-tubercle bacillus certain differences became apparent. For while both organisms grew well at 22° F., the new bacillus grew even better at 37°, at which temperature the fish-tubercle bacillus refused to grow at all; and at the temperature of the cupboard—say, 12° to 16° C.—the fish-tubercle bacillus grew well, but the new bacillus scarcely at all.

The early colonies of the new bacillus were not quite the same as they subsequently appeared after time had allowed for the adaptation of the micro-organism to the conditions of artificial culture. At first on glycerin-potato or glycerin-agar they were large, raised, and nodular. In colour they resembled cream, like tubercle bacilli. Their sides were steep, and their consistence crumbly, for when touched with the platinum needle they broke into fragments which refused to stick to the wire, and on agar slipped about the surface and eluded capture. In sub-cultures, however, the colonies were soft and no longer tended to break into elusive crumbs, and the colour became whiter. On potato the bacillus formed a continuous, finely-nodular, thick, whitish layer, which was never seen to become wrinkled, as so often happens with cultures of the fish-tubercle bacillus; moreover, it showed no tendency to develop in old cultures the blackish-purple colour sometimes produced on potato by the latter bacillus. But, like this microbe and many others of the acid-fast group, our new bacillus grew freely on potato which had been coloured with methylene-blue, and like them again it built up the blue colour into its colonies.

The bacillus itself, like its colonies, changed somewhat as cultivation proceeded. At first it was a long, slender, slightly curved rod which showed some trace of segmentation of its stainable substance, just as tubercle bacilli and other acid-fast bacilli are apt, in common with the diphtheria group, to do. But subsequently it became shorter and plumper, and usually appeared as a bacillus with a somewhat indefinite outline which stained badly (with carbol-fuchsin) except for a dark-red spot in the middle. This form is not uncommon with many acid-fast bacilli, and has been described by Theobald Smith as occurring in the bovine type of tubercle bacillus after long artificial cultivation.[1] In both forms the bacillus was strongly acid-fast, resisting, after five minutes' staining in hot carbol-fuchsin, decolorization in 25 per cent. sulphuric acid and 70 per cent. alcohol. This decolorization could be pushed, as with other acid-fast bacilli, without danger of decolorization, but after acid the colour could slowly be washed out with absolute alcohol.

The pathogenic power of the bacillus for the guinea-pig seems to have been low. A drop of the pus from the patient was injected intraperitoneally into one of this species without producing any lesions visible when the animal was killed two months later. The results of injecting the culture itself are not yet known.

Cultivated on glycerin broth it formed a superficial film which remained flat and thin, and never became wrinkled or climbed up the sides of the flask like the tubercle bacilli in like circumstances. The fluid remained clear, but a somewhat dense deposit of growth accumulated at the bottom. Growth on various media was somewhat deliberate, but considerably more rapid than that of tubercle bacilli. It required several days to reach its maximum development.

REFERENCE.

[1] Theobald Smith: Note on the Stability of the Cultural Characters of Tubercle Bacilli, etc. Reprinted from the *Transactions* of the First Annual Meeting (1905) of the National Association for the Prevention of Tuberculosis, U.S.A. (See Figs. 2 and 4, opposite page 6.)

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE INFLUENZAL EPIDEMIC IN GENERAL PRACTICE.

CAPTAIN BURNFORD'S article in the BRITISH MEDICAL JOURNAL of July 20th raises a number of points of interest, but his suggestion that the epidemic is of the nature of a glandular fever is not in accordance with experience here. After an experience of perhaps 1,000 cases, I may say that glandular enlargements, whilst they occurred in moderate numbers, were not a predominant feature of the whole range of cases seen. With rubella and mumps there were, indeed, certain points of contact where glandular enlargements were prominent, but in no case did I see a rash, and in no case did the question of differential diagnosis seriously arise.

Swabs from the nasopharynx and tonsils were examined bacteriologically in twelve cases. The results were practically negative. No organism was found common to all cases, though an unidentified micrococcus was detected in several instances. The blood from these patients was also negative. There were distinctive differences in type between cases I saw at first and those seen later. At first cases were comparatively mild, and recovery was as prompt as onset was sudden. One heard of people taken ill at work or in the streets, and after a couple of days or more in bed, if freed of their pains, still extremely weak. The leading signs and symptoms were of the familiar type dealt with in your editorial of July 13th. Afterwards meningeal symptoms became a serious preoccupation, especially in children. Headaches have been intense, nose bleedings, and even ear bleedings, and symptoms referable to pressure within the ear have been common enough to justify a warning to the relatives that they were to be expected.

As a sequel to the severe head symptoms, complaint was frequently made of lumbo-sacral pains. Most of these meningeal cases were dangerously ill, though none died. Severe vomiting has been not uncommon, more especially in adults; recovery has been delayed, and mental symptoms were frequent.

In certain cases pneumonia was suspected, and in some occurred; but, as a rule, I think bronchiolitis is probably a good description of the actual lung condition. In some instances both head symptoms and pneumonic troubles were present, but usually the former ultimately became dominant in these cases.

Prophylaxis may be summed up in the words "free ventilation" and "fortify the power of resistance" in every possible way. The fact that the majority of our cases occurred in panel practice suggests overcrowding as a prime factor in the dissemination of the disease, as, of course, one would anticipate.

As to treatment, quinine probably lowered resistance and was frequently taken by patients on their own initiative, and, therefore, ignorantly. Hexamine was given in all head cases, but with doubtful benefits. Bromides, on the other hand, distinctly controlled the vomiting. Aspirin appeared to relieve the pains, and the salicylates were useful.

I am indebted to Dr. E. Bruce Wilson and Captain A. A. Bisset, R.A.F., for permission to refer to cases occurring in their practice, and for valued assistance.

Sheffield. G. HOLLIDAY, M.B., C.M.Edin.

COLLOSOL MANGANESE IN FURUNCULOSIS.

I HAVE used the treatment for furunculosis recommended by Sir Malcolm Morris[1] with great success in a man who had been under my care with "boils" for the last five years. He had never been completely free from them. His life was a misery, and he was frequently too ill to work. On May 5th I gave an injection of collosol manganese (0.5 c.cm.), and each week following for the next five weeks I gave injections of 1 c.cm. After the second injection the boils (five in number) rapidly cleared up. He has since been absolutely clear, and feels better in general health.

Luton. W. E. LEVINSON, M.R.C.S., L.R.C.P.

Reviews.

UTERINE FIBROIDS.

DR. CUTHBERT LOCKYER has long been known for his active interest in gynaecological pathology, and he has collected his special knowledge and observations regarding myoma and adenomyoma into a volume entitled *Fibroids and Allied Tumours*.[2]

Author, artists, and publishers are to be congratulated on a very fine production. The whole appearance and printing of the book are worthy of the best traditions of the great house of Macmillan. The numerous illustrations, both coloured and plain, are superb; merely to turn over the pages and look at them is as good as a demonstration on the subject.

The text is obviously from the pen of one who has made a prolonged study of his subject from all aspects, and has handled the tumours both in the theatre and in the laboratory. It is to the latter aspect of the subject that the reader will turn first, because the number of good books on gynaecological pathology is about as small as the number on the operative aspect of the subject is large. The pathology of fibroid tumours is discussed from A to Z, and every point is illustrated by drawings or paintings, mostly from the author's own specimens. All the little that is known as to the etiology of fibroids is discussed, and the histogenesis and histology described in the light of Mallory's work. An account of the anatomy of the subject is followed by a chapter on the changes in neighbouring organs produced by the presence of the tumours. This is succeeded by a very able and full discussion of the secondary changes or degenerations to which fibroids are so liable. The ordinary hyaline and cystic and the rarer fatty changes are very fully explained and illustrated. In connexion with the last named a clear account is given of the very unusual lipomyoma or lipomatosis of a myoma. Red degeneration necessarily claims considerable space for discussion of the numerous unsolved problems it presents. Finally, in this section the author gives a clear lead on the subject of malignant changes occurring in myomata, which may be commended to any sceptics still holding out in the London schools.

In the section on the treatment of myoma the writer gives a useful summary of the generally accepted values which are now to be placed upon *x* rays, radium, and mesothorium. The different methods of employing the rays are described, as well as the dangers and contraindications. Wise insistence is laid upon the necessity that the decision as to whether or not a particular fibroid is suitable for treatment by radiotherapy should remain entirely in the hands of the gynaecologist. But the gynaecologist who essays to express an opinion to the radiologist had better first fortify himself by the perusal of this chapter. Lastly, in this part of the volume comes an interesting summary of the history of operative treatment, and a discussion of the different operations which have been practised.

The second part of the volume is concerned solely with that interesting tumour, the adenomyoma, a subject on which Dr. Lockyer has made himself an acknowledged authority. Considerable space is given to a historical account of the different views held as to the etiology and histogenesis of this tumour. The reader is guided very clearly from the view of von Recklinghausen that adenomyomata were essentially of Wolffian origin, to that of Cullen, who first described the glandular elements as originating in all cases from the endometrium, and on to the further modification of the latter view put forward by von Franqué—namely, that pre-existing inflammation explains the origin of most of these growths. Iwanoff's views as to the origin of some such tumours from the peritoneum by a process of what Meyer calls "heterotopy," are explained. The author regards this as the explanation of the existence of epithelial spaces and cysts in most extrauterine swellings found, for example, in the recto-vaginal septum. This general discussion is followed by a full description of adenomyomata as they have been found to affect the different parts of the genital tract. The author believes that the tumour may become malignant, but that this rarely happens.

The third and last part of the book is devoted to a fully illustrated description of the operations for myoma, including chapters on the after-treatment and possible complications. Several appendices on special points of interest conclude the volume.

We have only one complaint, and that is, that the references to literature and authorities quoted are not numerous enough. Authors who have by their own exertions made themselves familiar with a subject need not hesitate to make the path easier for those who follow by mapping it as fully as possible.

British gynaecology has every reason to be satisfied with this book, and the author's own school in particular may be proud of it. It is a mine of information which will reward the attention of all gynaecologists, particularly those engaged in teaching. It may be commended to all interested in the subject as a masterly and exhaustive exposition, clearly and interestingly written, and profusely, beautifully, and instructively illustrated.

THE ELECTRICIAN AS PHYSIOLOGIST.

IT is difficult to understand precisely what is the intention of Mr. BAINES'S *Studies in Electro-Physiology*.[3] If, as the title suggests, it is an account of the author's own work, it would have been much improved by the omission of the quotations from elementary, and sometimes antiquated, textbooks of physiology and the extremely superficial resemblances between histological structures and electrical apparatus. Moreover, no attempt is made to meet the most serious objections that have been brought against Mr. Baines's experimental methods. The activity of the sweat glands, always associated with changes of electrical potential, is dismissed in a few lines which do not meet the case at all. Physiologists will not accept the conclusions of the book until the same phenomena have been demonstrated by the use of non-polarizable electrodes. If metallic electrodes are used—and Mr. Baines will have no others—it is imperatively necessary that their equipotentiality and freedom from polarization should be tested in every experiment by previous immersion in a salt solution. The question is not one between the physiologist and the physicist (see p. 68), but a pure matter of physical chemistry. The objections taken to the use of non-polarizable electrodes arise from the fundamental misconception at the base of the whole of the theoretical treatment. No one denies that living organisms possess an electrostatic capacity, nor that they conduct currents, and when forming part of a circuit, that induced currents might be produced in them. These properties are also possessed by dead organisms, if moist. But physiologists

[1] BRITISH MEDICAL JOURNAL, April 20th, p. 446.

[2] *Fibroids and Allied Tumours (Myoma and Adenomyoma): Their Pathology, Clinical Features, and Surgical Treatment.* By Cuthbert Lockyer, M.D., B.S., F.R.C.P., F.R.C.S. With an introductory notice by Alban Doran, F.R.C.S. London: Macmillan and Co. 1918. (Roy. 8vo, pp. xix + 603; 316 figures, 37 coloured plates. 63s. net.)

[3] *Studies in Electro-Physiology (Animal and Vegetable).* By Arthur E Baines, Consulting Electrician. London: G. Routledge and Sons Ltd. 1918. (Demy 8vo, pp. xxix + 291; 146 figures, including 4 drawings in colour. 12s. 6d. net.)

require much better evidence than is brought in this work to make them believe in the importance of these facts in regard to any vital activity. The misconception alluded to above is the neglect of the fact that the electrical processes occurring in active tissues are connected with the movement of ions and that the conductivity of these tissues is of the kind called electrolytic.

The account of the author's own work would have been much more valuable if the essential details of certain experiments had been described in such a way that other observers could repeat them. As an instance, on p. 40 we are told that a potato was boiled and then joined up by steel needles to a dry cell ("zinc to unprolific, carbon to prolific, eye"). The connexion was broken after twenty-four hours, and thereafter the potato "began to sprout in a quite remarkable manner." Our hunger is excited, and, like Oliver Twist, we ask for more.

But the book appears to be intended as a general account of vital functions from the electrical standpoint. If this be so, the omission of a description of the Einthoven galvanometer and the electro-cardiogram, not to speak of the changes in secreting glands, is somewhat surprising. The author is so convinced that no one devoid of the training of a submarine cable engineer is capable of electro-physiological work that he does not seem to have thought it worth while to find out what has been done in recent years. A physiologist would hesitate to claim the ability to give a detailed description of the manner in which the eye and the ear operate; but the task is not beyond the powers of the submarine telegraph engineer, as we are told on p. 217.

Mr. Baines is rather troubled with the problem of the galvanic cell, whether the electrical current is the cause of the chemical changes or vice versa. This is of some importance in connexion with his views as to the production of "neuro-electricity" in the body. He appears rather to favour the former theory, but are we not reminded of the old discussion as to the priority in time of the hen or the egg? We are told, however, that there is in the body a "generator of neuro-electricity" and that an electrical discharge is continually being given off to the air. There must be a source of this supply of energy at high potential, and Mr. Baines might do well to consider the laws of thermodynamics in this connexion. But "neuro-electricity" is a very elusive form of energy.

A large part of the book is occupied by lengthy quotations from other works, some of questionable authority. When Mr. Baines declaims against the ignorance of physiologists, one may fairly ask why, in respect of the nature of the nerve impulse, he makes no reference to the work of Keith Lucas, who did more than any one else to elucidate it.

The coloured pictures of apples and onions are very well done and reproduced; but the same cannot be said for most of the figures in black and white. That of the protoplasmic movements in the *Tradescantia* hair, on p. 134, can hardly be excused, when the accurate representation given by Kühne was available. Fig. 80, on p. 151, is altogether misleading.

The reviewer would not desire to attach blame to Mr. Baines for his failure to appreciate well-established physiological facts. Physiology is a very difficult science, including an enormous range of phenomena and requiring a lifetime of study. Huxley, in referring to its value as a mental discipline, gives as one of its valuable qualities "the *exactness* of knowledge which it requires on the part of those among its votaries who desire to extend its boundaries." W. M. B.

CERTIFYING FACTORY SURGEONS.

The Sixpenny Fee.

THE Incorporated Association of Certifying Factory Surgeons recently forwarded a memorial to the Home Office on the subject of fees payable for duties performed under the Factory Act and the Workmen's Compensation Act, drawing attention to the particular need for some revision at the present time of increased expenditure for everyday necessities. It was stated that surgeons who are solely or mainly dependent upon their factory appointments, and who consequently have suffered correspondingly through the abolition of accident investigations, are very hardly placed at a time when money is so plentiful among those engaged in manufacturing industries. It was also pointed out that under an instruction of December 31st, 1916, increased care in the physical examination of children and young persons is now required. The following recommendations were made:

1. The sixpenny basis for examinations for certificates of fitness, where there is no arrangement with the occupier, and for work done under special rules, should be raised to one shilling. It is therefore recommended that the fixed scale should be one shilling per person examined, the minimum fee per visit to a factory or workshop to be two shillings and sixpence, plus mileage at the present rate.

2. The fee for investigation and report in cases of septic poisoning should be raised to five shillings, and for industrial poisonings and disease to seven shillings and sixpence, with mileage as at present.

3. The fee for examination and certifying under the Workmen's Compensation Act should be ten shillings, *plus* one shilling per mile or part of a mile travelled, and should be made a charge against insurance. When a report of the case has been made under the Factory Act the fee under the Compensation Act should be five shillings.

On July 24th the Chief Inspector of Factories, who was accompanied by Dr. T. M. Legge, the principal Medical Inspector, received a deputation from the association for the purpose of discussing the points raised in the memorial. It was pointed out that the sixpenny basis of payment for certificates of fitness, with the minimum of two shillings and sixpence for a visit to the factory, had existed unaltered since the establishment of certifying by the Act of 1833, the reason for the smallness of the former being that the sixpence had to be paid by the child or young person, the employer's obligation being limited to making up the difference between the sixpences collected and the half-crown for a visit. With respect to the fee of sixpence for examination at the surgeon's rooms, it was mentioned that for this sum, apart from the examination, a form of certificate must be filled up, a visit may have to be made to the works, and, in case of refusal to certify, the parent can demand to have the reasons set out in writing.

Discussing a former refusal to revise the fee for examination at the surgeon's rooms, on the ground that the Home Secretary did not care to abolish by Order a privilege granted by Parliament to small employers, it was shown that this particular charge was first authorized, in connexion with works employing a limited number of children and young persons, by a Home Secretary's Order following the Act of 1867, and that no part of the fee was paid by the employer. Parliament did not originate the so-called privilege, but simply confirmed it in the Consolidating Factory Act of 1878, though modifying it to the extent of ordering the employer to pay half the sixpence. It was not until 1891 that the employer became responsible for the whole of the fee. It was urged that the establishment of a shilling basis would affect the small employer very little, would tend to diminish the number of visits to the surgeon, would act as a powerful factor in stopping the practice of illegal collection of five for presentation at one visit to the factory, and would tend to revive the excellent system of contracting for regular visits by the surgeon.

The Chief Inspector thanked the deputation and promised that the representations made would be duly laid before the Secretary of State.

Medico-Legal.

THE COVENTRY CASE.

Pratt and Others v. the British Medical Association and Others.

THE hearing of the evidence and speeches in this action was concluded on July 30th, when Mr. Justice McCardie reserved his judgement over the Long Vacation. The following is a continuation of the report of the case which was published in the BRITISH MEDICAL JOURNAL for August 3rd and 10th at pp. 123 and 135 et seq.:

Continuing his evidence in cross-examination by Mr. Schwabe, Dr. Cox said the local men were in the best position to judge of the local conditions.

Mr. Justice McCardie: The local men might wish that the dispensary should remain tainted, because so long as it is a thing of less repute than it might be, so long will they get the greater possibility of private practice.—Dr. Cox: I do not think it has ever been alleged against the medical profession that it has not been always willing to make full accommodation for contract practice of people who cannot afford fees.

With regard to the suggestion that Dr. Holmes was condemned without being heard, he could not say what happened at Coventry. While (apart from R. 9) there was no rule providing that notice should be given to a member of the Association, or non-member of the Association, of a charge made against

him in respect of his professional misconduct, it was the practice to require a notice to be sent. They had never ostracized any general hospital.

Mr. Justice McCardie: The fundamental distinction between the two is that the hospital is, in the eyes of all men and to the knowledge of all, a completely philanthropic institution?—Yes. Lay control there was a subordinate matter.

Continuing, witness said it was untrue to say that they tolerated consultations in urgent cases with medical officers of the dispensary in order to save their faces in the eyes of the public. It was done from the ordinary feelings of humanity. The Association had been asked to compile a list of doctors and chemists whose services were available to attend on dependants of soldiers. The secretaries of the Divisions and Branches were invited to assist in preparing a local list. The card index kept in London contained the names of all practitioners on the *Register*, and would include the names of the plaintiffs. He had not inquired whether the request to lend their services had been sent to the plaintiffs by the local Division. In his opinion it should have been sent. The ostracism would certainly not be a sufficient ground for not sending it.

Re-examined by Mr. McCall: The Coventry Division was very representative of the doctors in the area. Whether the rule expressly said so or not, it was the practice to give notice to any one about whom a complaint was made to attend before the committee. Again, whether it came about by rule or by practice, there was an appeal from a Division to a Branch, and from a Branch to the Central Ethical Committee.

Mr. Justice McCardie: Is it necessary to get the consent of the Central Ethical Committee before Rule Z is circulated?—Yes. Witness explained that when a Division came to a conclusion that the conduct of a particular medical man was detrimental to the honour and interests of the profession, it reported the facts to the Central Ethical Committee. The decision of the Division was accepted as a decision on a question of fact, and the Central Ethical Committee considered whether all the facts laid before it were sufficient to justify the circulation of the name with any attendant risk which might follow. In a good many cases it had not been allowed. Judged by the standard he had already described, a man who accepted office at the Coventry Dispensary was guilty of conduct detrimental to the honour and interest of the profession.

Mr. McCall: In your opinion were the men in the Coventry Division professional brethren of good repute and competency?

Mr. Schwabe: I object to the question. It is irrelevant.

Mr. Justice McCardie: I allow the question. The issue of malice having been raised, the question as to the nature, position, and character of the persons who lay the facts before the British Medical Association may be of great importance.

Dr. Cox (answering the question): Certainly, seeing that the Coventry Division consists of practically all the medical men in the neighbourhood and the Coventry Division has always held its own in the medical world. Continuing, he said that the Central Ethical Committee had never surrendered to the Division the right to apply the ethical rules to the facts of a case. Dr. Pratt had never, within his recollection, made any complaint to him of not having been heard. With regard to the warning notices, it was his experience that they had been of great service to young practitioners. The notices had been altered in October, 1914, and the alteration stood. The committee which had reported on Medical Aid Institutions considered about 150 of those bodies.

Dr. James Neal, Deputy Medical Secretary of the British Medical Association, examined by Mr. McCall, said that in all his dealings with the Coventry Dispensary he was never animated by any motives of personal ill will towards the plaintiffs or any of them. Neither Dr. Pratt, Dr. Holmes, nor Dr. Cairns had complained to him of not having been heard. With regard to the warning, he had had experience of the effect upon young practitioners.

Mr. Schwabe objected to the evidence, but it was admitted.

Witness said that the warning notices were beneficial to the profession.

In cross-examination by Mr. Schwabe, he said that the fact that a man took an appointment, the holders of which had been ostracized after notice, was sufficient ground for expelling him from the British Medical Association. It was true that by one of the model rules a non-member was to be ostracized if he acted in contravention of any rule of the British Medical Association if he had had notice, but it was a practice invariably safeguarded. The rule must have been passed after due notice and by a fixed procedure. Again, the issue of any notice which would bring about professional ostracism must be first sanctioned by the Central Ethical Committee—not by the Division only. Every effort was made to give notice of the procedure to non-members. The model or "Bradford" rules were adopted in Coventry in 1907, and Rule Z was definitely adopted by the Coventry Division on January 21st in that year. It was never understood that ostracism would commence before the Central Ethical Committee had permitted the sending of this resolution under Rule Z. He did not think it correct to say that Dr. Holmes was ostracized without the circularization of the rule.

Having given evidence about the circulation of the JOURNAL, the witness was re-examined by Mr. McCall. He said that, as a matter of practice, there was no ostracism before circularization, and even after the Ethical Committee had decided the matter the solicitor was always consulted before it was put in force.

The witness having withdrawn,

Mr. Justice McCardie observed that it was difficult to see how ostracism could be prevented beginning as soon as the resolution was passed. From that moment onwards what was the position between the single practitioner and the great body of men who had practically said that he was not a person they ought to associate with?

Mr. McCall replied that it was as immaterial as it would be in the case of a club where some of the committee, whose decision required to be ratified by the members, declared, "I will not speak to that man again until the matter is cleared up."

Mr. Justice McCardie: But the Division cannot rescind a resolution, even if the Central Ethical Committee do not sanction it. It stands. But perhaps the local practitioner, if he finds that the Central Committee disapproved of the resolution, can say: "That resolution has been condemned by the higher authority." If he can say that, I suppose you may rightly urge that the resolution is not, possibly, effective.

The signed proof of Dr. Davidson having been read,

Major John Orton, R.A.M.C., M.R.C.S., L.R.C.P., J.P., who had been a member of the Coventry Division since 1894, examined by Mr. Hollis Walker, said the constant complaint against the dispensary was its being used by persons who should not avail themselves of such an institution. He said that in 1900 Dr. Fletcher, who was on the dispensary staff, resigned because he was asked to see a patient living in a large house. Dr. Davidson resigned at the same time for the same reason. When the Coventry Division started in 1903 it adopted certain rules. In 1904 it adopted the Bradford rules, and, in 1907, Rule Z. The Division had been approached in 1905 by Dr. Pickup with a view to getting things altered at the dispensary. He had lived at Coventry all his life, and had no ill will towards any of the plaintiffs. The dispensary really concerned him personally very little, because he practised in the suburbs.

In cross-examination, he said that a proposal which was made that all the Coventry practitioners should become doctors of the dispensary was made to check abuses. He objected, amongst other things, to lay control.

Dr. Pickup, M.D.Lond., examined by Mr. Hollis Walker, said he joined the staff of the dispensary in 1882 and remained until June, 1907. When he joined it was managed by a lay committee consisting of the leading citizens, who were subscribers. He and his colleagues tried to get reforms; they wanted a wage limit and more medical control. Eventually they did get a wage limit of £2; they finally consulted the Coventry Division. His principal objection to the institution was that it kept as members numbers of people who improved their position. He never heard of a member being called on to resign. He also thought the dispensary should be open to all doctors.

Cross-examined by Sir Hugh Fraser, he said that at first he did not think there was anything derogatory in being connected with the dispensary, but during the last ten years it was being abused because of the members who ought not to remain in it. He never told Mr. Farren that he was forced to resign by the action of the British Medical Association. It was because he and his colleagues could not get reforms.

Dr. Lowman having been called,

Dr. Thomas Webb-Fowler, examined by Mr. Hollis Walker, said he had been a member of the Coventry Division since 1903. In April, 1913, he had a message from Dr. Burke on the telephone. After ascertaining from Dr. Orton that the ban was still on, he said he could not meet Dr. Burke in consultation, and could not attend a patient (Mrs. Turton) while he was in attendance. As well as he could recollect, he suggested that Dr. Burke should retire from the case, and Dr. Burke said, "Probably, yes." The result was that Dr. Burke lost, possibly, two guineas. Patients were received at the Coventry Hospital whether they belonged to the dispensary or not.

Cross-examined, he said he only knew of one doctor at the dispensary who was refused admission to the hospital. There was no definite arrangement that they should be refused. During the house-surgeoncy of certain men none of the plaintiffs would have been refused admission to the hospital, but at other times there might have been trouble. He had seen Mrs. Turton since. He desired to explain that when a patient was attended by one practitioner, and desired to see another, either there was a consultation or a change of doctor. Here there was a change of doctor. What happened in this case did not seem to him different from other cases.

Dr. Kenderdine and Dr. Hawley having been called,

Dr. Squire Sprigge, editor of the *Lancet*, examined by Mr. McCall, said that he was familiar with what had happened in this case. He had written a book, entitled *Medicine and the Public*, in which he had dealt with medical aid societies.

Mr. McCall: Do you agree with the objections which the Coventry doctors take to the dispensary? Sir Hugh Fraser objected to the question on the ground that justification had not been pleaded. Mr. McCall submitted that he was entitled to an expert opinion. Again, upon the issue of conspiracy, the question arose whether the defendants were not entitled to take reasonable steps to protect their own interests. His Lordship allowed the question.

In reply, witness said he thought the action of the British Medical Association and its Ethical Committee was entirely justified and directed towards the maintenance of a high professional standard. He was referred to his book, pp. 54, 55. That represented his views. There was not, in his opinion, any ground for saying that the Association were usurping the functions of the General Medical Council.

In cross-examination, he said that in his opinion, inside professional relations, it was dishonourable not to support the standards which the leaders of the profession made for the honour of the profession. He objected to lay control when

professional questions were involved, and when the National Insurance Act was passed the abolition of lay control was an argument used to persuade the medical profession. The appointment of the medical staff, for instance, should be made by a committee at which the medical voice was clearly heard without the lay voice. When a professional question was at issue the people who had the right to allot blame or take action on it ought to be a committee on which there was no question of lay control. With reference to the passage in his book as to the insufficient payment of medical men at dispensaries, he said that he would be surprised to hear that salaries at Coventry were £600 when the book was written. The salaries during the last few years had not, so far as he knew, been too small. Shortly after his book was written he published articles in the *Lancet* relating to the Coventry Dispensary. When he spoke of bad management he meant from the medical point of view. The conditions of dispensary practice did not conduce to the maintenance of professional standards. He considered that the British Medical Association had a perfect right to order their members not to associate with the officers of the dispensary. They were wrong in taking the posts. Although the refusal to consult with an officer of the dispensary might be bad for an individual patient, if such things led to better medical attendance on the public, then, although it would not be in the interests of that individual patient, it might be in the interest of the public in the end.

Dr. M. G. Biggs, in giving evidence, said he had been a member of the British Medical Association for thirty years and Chairman of the Central Ethical Committee for five and a half. He had heard the evidence of Dr. Sprigge on the general aspect of the case and agreed with it.

In cross-examination, he said that in his opinion the plaintiffs had acted contrary to the honour of the profession in breaking the rules of the Association and in not acting with their professional brethren in the matter of the dispensary. A man who thought he was accepting a post contrary to the rules of the Association ought to be, and was, allowed to resign, but not while there was an inquiry pending. He thought it was right that the rule as to ostracism should be applied to non-members, but no such case had occurred.

Mr. Justice McCardie: Is it your view that a non-member who has broken the rules of the local Division of the British Medical Association should be ostracized by the medical profession?—Yes.

Sir John Tweedy, examined by Mr. McCall, said that he was a passive member of the Association.

Mr. McCall: Having heard the evidence and the objections raised to the dispensary, was being on the staff contrary to the honour and interests of the profession?

Mr. Schwabe: I object.

Mr. Justice McCardie: You have suggested that the Coventry gentlemen could not fairly believe that the acceptance of the post was "contrary, etc." I think it is admissible.

The witness, in his reply, referred to Allinson's case, and maintained that if an organization like the British Medical Association, representing a large body of the profession, held that a particular line of conduct was discreditable or dishonourable, then there was prima facie evidence that the members of the Association should be influenced and governed by it.

Mr. Justice McCardie: You would give no effect to the rights of minorities?

Witness was asked as to the meaning of the phrase "honour of the medical profession," but Mr. Schwabe objected on the ground that the innuendo put upon the words had not been denied.

Continuing, witness said that the opinion he had expressed did not impute any personal dishonour to the plaintiffs or any of them. They had not been guilty of dishonourable conduct in the ordinary sense of the term. The Association, which had not in any way usurped the functions of the General Medical Council, had done work essential to the well-being of the profession. If it and its Ethical Committee were swept away something similar and on stronger lines would have to be started. This was the more so because there was now no apprenticeship in the profession; mere tyros had no insight into its mysteries. The necessity was for a central body to control the customs, behaviour, and professional conduct of the medical profession.

In cross-examination, Sir John said that he did not conceive that an Act of Parliament could achieve the purpose. Ethical jurisdiction was personal. He would leave administration to the local Division. If the rule was passed by a body of men of good repute and competency, anyhow, so far as that locality was concerned, he would regard it as sound, provided it was reasonable.

Dr. Langley Browne having been called, the defendants' case was closed.

Mr. Hollis Walker, K.C., in addressing the Judge for the defendants, said that the difficulties and complications began with the statement of claim, the numerous paragraphs of which disclosed several causes of action. For instance, Dr. Burke's claims arose partly in respect of matters earlier in date than in the case of the other plaintiffs, who came into the proceedings later. It was alleged that the defendants were acting for one another, making each liable for the others' acts. The Association accepted responsibility for some acts of the individual defendants, but not for all; for instance, the Association denied agency in the matter of the warning notice. Again, in par. 9A certain defendants were accused of slander and libel, and in that respect the Association was not a principal. As regarded Dr. Cox, the Association accepted responsibility.

[Counsel having gone through the statement of claim saying in what respects the Association accepted responsibility for the acts of the other defendants, said the claim in conspiracy for libel and slander added nothing to the claim for separate libels and slanders (Thomas *v.* Moore (1918) 1 K.B., 555). He contended further that a corporation *per se* could not be guilty of conspiracy.]

Mr. Justice McCardie: Can you suggest any ground for distinguishing "intention to injure" in conspiracy, from "malice" in libel? Mr. Hollis Walker: A corporation from its very nature cannot be a party to a conspiracy. As to conspiracy in general, the law is obscure. Mr. Justice McCardie: It is impossible to reconcile, not only the *dicta*, but the reasons given by various judges.

Continuing, Mr. Walker submitted that conspiracy was an agreement to do something lawful by unlawful means, or something unlawful by lawful means. The question was, What was meant by "illegal means"? Illegal, in his submission, meant something tortious or criminal. The real object in the present case was not to injure the plaintiffs, but to benefit the defendants. Malice was essential.

Mr. Justice McCardie: Suppose a man deliberately decides to ruin another—is there not malice? It was admitted by Dr. Cox that it was meant that these men should be ruined. That appears to involve malice in law.

Continuing, counsel said that what might incidentally happen to the plaintiffs was not material. The object of the defendants was to benefit the profession.

Mr. Justice McCardie: The defendants have not pleaded any just cause for the alleged conspiracy. No just cause for the threats to Dr. Holmes has been pleaded.

Mr. Walker said that the question whether the rules were *ultra vires* was now raised for the first time. Mr. Schwabe: Rule 26, which is "F" in the Coventry rules, is unlawful, as being in restraint of trade. It begins: "Subject as herein contained," etc. "Just cause and excuse" has not been pleaded in justification of the conspiracy. Mr. McCall: The defendants in all that they did were acting honestly for the protection of the honour and interests of the profession.

Mr. Justice McCardie: If that is your proposition, you will have to consider the cases like Lumley *v.* Gye, which apparently go to show that that is no justification.

Continuing, Mr. Hollis Walker said that, as to the libels, they had pleaded privilege where the defendants were discussing amongst themselves a matter of common interest. As to the warning notices, it was clear that a certain number of copies of the JOURNAL got into the hands of the public. The plaintiffs were not mentioned by name. It was not a libel.

Mr. McCall, K.C., continuing by leave of the court, said that the Association was founded for the protection of the interests and honour of the profession. The absence of any charter was immaterial, as any trade can form such an association. The Coventry Division was merely a branch of the Association. The defendants formed the honest conclusion that the dispensary was prejudicial to the honour of the profession. They therefore said that it should be barred from intercourse with the Association, and the bar should be made as effective as possible. No legal right of the plaintiffs was violated. The defendants were perfectly entitled to say, "Dissociate yourself from the dispensary, or non-intercourse will drive you away." In Giblan's case (supra) Romer L. J. (at p. 619) admitted that such conduct was justifiable. If the purposes for which the alleged libels were published were justifiable, the publication was justified. It is said that R. 27 Z. was in restraint of trade, but it did not come within any definition of the same (see the note to Mitchell *v.* Reynolds, 1 P. Wms., 181). The most important question was this: Are the defendants to be convicted of conspiracy and malice when the leaders of the profession say that all that the defendants did was essential to the interest of the profession?

Mr. Schwabe, K.C., in addressing the Judge for the plaintiffs in reply, said that an action lay for any invasion of legal rights involving damage. The plaintiffs' rights were to carry on their business unmolested. Where one person invaded the legal rights of another he must show that he only used reasonable means, but libel and slander, coercion and intimidation were not reasonable means. He referred to Quinn *v.* Leathem (1901), A.C. 495, at pp. 500, 520, 536, and 537. You may protect trade rights, but you may not interfere with another's right to carry on his business. The defendants here used threats, though it was unnecessary to define precisely what a threat was. Larkin *v.* Long (1915), A.C. 814, was an authority for the proposition that the belief that you are acting for your own benefit does not justify you in invading another's rights, and you may not induce another to break a contract for your own benefit. He referred to South Wales Miners' Federation *v.* Glamorgan Coal Company (1903), 2 K.B., 545; Giblan's case (1903), 2 K.B., 600; Allen *v.* Flood (1898), A.C., 1; and the National Phonograph Company case (1908), 1 Ch., 335. It was clear that the Association was acting as agents for the Coventry Division, who caused the publication of the warning notice. The Association, in its capacity as agents, was responsible for all the acts of the individuals who carried out the ostracism of the defendants, the individuals merely doing what the Association wanted by their isolated acts, which were within the scope of the authority committed to the individual defendants by the Association. The isolated slanders and libels were in pursuance of the scheme of ostracism, and so also were the speeches at meetings. Once a common design was shown, evidence against one defendant was evidence against all. The libel of April 6th, 1914, in the BRITISH MEDICAL JOURNAL was part

of the general conspiracy. There was coercion by compelling other members to refuse consultations, etc., by threats of ostracism. What Mr. McCall called "persuasion with a sanction" was in fact coercion. Dr. Suckling was coerced and intimidated. The defendants being guilty of conspiracy could not rely on the defence of common interest. The defendants' publications of libels and slanders were not privileged, and even if they were, malice was proved against them, destroying the privilege. There was publication of defamatory matter to Dr. Suckling, who was not a member, and probably to all practitioners in the district, or at any rate to members of the Association, also to Turton, Busby and Holman.

Continuing, Mr. Schwabe said that as to malice, there was no bona fide belief in any one that the plaintiffs had done anything detrimental to the honour of the profession; all that could be said was that the plaintiffs broke the rules of the Association. In truth, a breach of the rules was intended to be followed by ostracism. The defendants knew perfectly well that the plaintiffs were doing nothing detrimental to the honour of the profession. They abused the breach of a rule to publish a libel. The whole scheme was skilfully devised to put into operation a trade union rule. Instances of malice were that when Birmingham acquitted Dr. Suckling of any offence, Coventry was not satisfied; that the defendants refused to remove the boycott, however much the rules were altered, because it would leave the plaintiffs in possession. There was malice in preventing the plaintiffs helping their country in the time of her stress. To call the defendants' procedure "ethical" was ridiculous; it was financial in its essence. Their habit of holding trials of their members and of non-members was farcical.

The plaintiffs were not necessarily entitled to the same amount of damages—for example, Dr. Burke suffered from the persecution longer than the others. The case of the defendants, however, was different, as they were all parties to the conspiracy throughout, and the doctrine of O'Keefe *v.* Walsh (1903, 2, L. R., 681) need not be applied. The plaintiffs were entitled, *inter alia*, to heavy damages for the gross libel in the JOURNAL in 1914 against the Association alone, and against all the defendants for boycott and ostracism.

Mr. Justice McCardie said that in view of the legal importance of the case, involving, as it did, the whole law of conspiracy, and of its importance to the parties, he would not deliver judgement until next term (October 14th).

THE FUTURE OF THE WESTMINSTER HOSPITAL.

IT is now a good many years since it was recognized by every one interested in the matter that the distribution of general hospitals in London had become unsatisfactory, owing to the huge centrifugal growth of that province of houses. The subject was keenly discussed in 1903, a fact to which our columns at that time bore witness. It was no doubt a result of opinions then very strongly expressed that King's College Hospital was removed to Denmark Hill in South London, for indeed no better illustration of the faulty distribution of general hospitals could have been given than the fact that on the northern side of the Thames, from Westminster to the boundary of the city—a matter of less than a couple of miles—there were three general hospitals—King's College, Charing Cross, and Westminster—and that opposite the last named on the southern bank was the great hospital of St. Thomas. On the southern bank was Guy's Hospital also, but in the farther parts of south-east London there was no large general hospital, and the decision to move King's College Hospital into that area was universally approved. But the hospital on its new site has been hampered by lack of money. Most of its beds are being used for military patients, and are extremely valuable, but when they have served that purpose there can be little hope that during the years of stringency that must follow the war the hospital will receive from the benevolent public, burdened by income tax and high prices for all necessaries, the financial support which would enable it to complete and maintain all its wards for civilian patients.

An opportunity is now presented for bringing about an amalgamation which would afford a solution beneficial to the population of South London, and, we would add, to medical education.

The advisability of removing Westminster Hospital from its present extravagant site in the centre of official London has for some years past become increasingly evident; the principle of removal was adopted at a meeting of the governors in 1912. Subsequently a scheme was started to build a hospital of 300 beds on the verge of Clapham Common, and land was bought with borrowed money to the amount of £23,000. The sale of the Westminster site, we understand, is now imminent, if not already completed.

A memorandum has recently been prepared by the active medical staff calling for a reconsideration of the proposal to build a new hospital at Clapham, and strongly expressing the opinion that the interests of the hospital, the public, and the medical school will all best be served by amalgamation with King's College Hospital, in conformity with the principles laid down by King Edward's Hospital Fund for London. Westminster Hospital has not funds enough to establish a really first-class hospital with all the departments, appliances, and laboratories required for scientific treatment and medical training. The recent story of King's College Hospital is a warning against ambition not backed by adequate financial resources. It has been unable to build accommodation for more than 360 of its projected 600 beds, and of the 360 only a certain number can now be maintained for civilian patients. Local requirements do not call for another hospital at Clapham; the Bolingbroke Hospital is close at hand and conveniently situated; moreover, two other hospitals, the Women's Hospital and the Weir Hospital, are already built, or about to be built, close at hand.

The site is unsuitable, but, even were it suitable, no practical business man to-day could say that there was reasonable prospect of obtaining from the benevolent public financial support adequate to the building, equipment, and maintenance of a medical school hospital. The time has passed when there need be any hesitation in putting forward this aspect of the matter. The discussions which have taken place during the last five or six years, culminating in the demand for a Ministry of Health, have convinced the public that doctors do not grow on hedges, like blackberries, and that good practitioners of medicine can only be formed by a long and elaborate education in which clinical instruction in a large general hospital forms an essential part. As Sir Clifford Allbutt said in commenting on the recent Board of Education report on medical education, "The student there observes Nature for himself; he is counselled and supervised, but is himself the workman." We find in the report itself assumptions as to the better organization of clinical teaching which involve the necessity of a hospital of not less than 500 or 600 beds. This, as the Westminster memorandum says, is the smallest economical unit. The teachers must have ample laboratory accommodation, in immediate proximity to the wards, for research, clinical pathology including cardio-respiratory work, bacteriology, microscopy, *x* ray, and electrical work, to say nothing of the special departments, such as those for diseases of the eye, of the ear, nose and throat, of nervous and incipient mental disease, of skin disease, and so on. Amalgamation of the two hospitals would not only have the effect of forming one large and well-equipped medical school hospital, but, incidentally, owing to the proximity of the Maudsley Hospital, would afford opportunities for study and teaching in the incipient mental diseases referred to above. The attempt to maintain a dozen independent medical schools in London has failed, owing not to any fault of the staffs, but because, with the progress of scientific medicine, the task of teaching the preliminary subjects of the curriculum in a dozen different centres has become not only impossible to accomplish but impolitic to attempt.

The two medical schools, King's College and Westminster Hospital, have already been associated for the teaching of the preliminary subjects for a number of years. Their amalgamation on the clinical side will result in the immediate transformation of two small struggling institutions into a first-rate modern teaching hospital, no time will be lost and no unnecessary capital expended. There is no question of the extinction of Westminster Hospital, or of its being swallowed up by a rival institution. The new institute would be a combined one, in which the traditions of both constituent partners would be equally maintained. Doubtless this will necessitate a new name for the combined hospitals, but this should not be difficult to devise.

BRAZIL is sending a medical unit to the French Army. It will consist of fifty medical men with a number of medical students and orderlies.

British Medical Journal.

SATURDAY, AUGUST 17TH, 1918.

MEDICAL LITERATURE AND THE PROGRESS OF MEDICINE.

AT various times and in divers places Professor Rignano, editor of the Italian periodical *Scientia*, has sought to induce the men of science in the allied countries to give attention to the parlous state into which scientific literature had fallen before the war. That cataclysm, he assumes, must have convinced the nations of the Entente of the danger that they had run of becoming victims of German hegemony in all fields of human activity—economic, technical, and scientific.[1] The fact has been realized on the industrial side in all the Entente countries; that it applies also on the scientific side is beginning to be understood in this country, and some steps have been taken, especially through the Department of Scientific and Industrial Research—which we hope may develop into a Ministry of Science—to bring about that co-operation between science and technology which has achieved such remarkable results in Germany. But the advance of science is largely conditioned by the manner in which the results obtained in any country are published for the information of all. The future of scientific literature is therefore a matter of no little national and international importance.

It is essential that the work done in any department of science should be brought to the knowledge of all workers in that department, and this can only be done by the systematic periodical publication, not only of the full text of papers, but of abstracts properly classified to ensure that the information shall be made readily available. The number of German periodicals purporting to do this kind of work had been steadily increasing for a good many years before the war. The effect—whether that was the deliberate aim, as some believe, or not—was that Germany was gradually monopolizing the scientific production of the world, by gathering widely, and by demanding the collaboration of learned men of all countries. Scientific organs were thus built up which purported to be international, but became in reality German instruments of control and monopoly in science. The system was rapidly placing in German hands the power to make or mar the international reputation of scientific workers in other countries, for it was easy to magnify everything German and to depreciate or ignore anything not German. Complaints of this nature have frequently been made by French men of science, and they and others made the more sinister accusation that the results obtained elsewhere were kept back until the investigation had been repeated in Germany, when the whole credit would be given to that country.

Professor Rignano urges that the time has come to create and develop in the principal branches of science and under the aegis and direction of the Entente nations, international scientific publications and reviews, in order to break up a monopoly which, he contends, foments sentiments that militate against the establishment of international relations founded on mutual esteem. We need not stay to consider the details of Professor Rignano's proposals for the publication of international periodicals conducted by representatives of Great Britain, France, and Italy, we may also add America, with the moral and material support of the ministers of public instruction and the most important scientific societies in the several countries. There are objections to such a course, which have been well put by Professor Meek of Newcastle, but even he agrees that the opportunity should be taken to discuss whether we should be content with pre-war conditions or whether the matter should not be carefully looked into now both from the national and international points of view.

The mere bulk of the literature in any department of science obstructs advance by making it difficult, if not impossible, for a worker even in a comparatively small department to avoid giving time to matters which have already been investigated by workers in other countries. In no department is this difficulty greater than in medicine, which includes so many subdepartments, ranging from clinical practice to the most complicated and abstruse questions in chemistry, bacteriology, and parasitology. The work was always too large to be satisfactorily accomplished by the ordinary medical journals, either in this country or abroad, although a gallant attempt was made by the British Medical Association to meet the need to some extent by the publication of an Epitome of Current Medical Literature, which was mainly concerned with foreign publications. The scheme found imitators both in Germany and America; some of them had perhaps already bettered the instruction before the restrictions imposed by the Paper Controller not only prevented any extension to meet present conditions, but rendered the continuance of the Epitome practically impossible. The need, however, has never been greater than at the present time, and this fact was recognized at the end of last year by the Medical Research Committee, which undertook the preparation of abstracts of foreign papers. These have been issued since the beginning of the year in a monthly pamphlet bearing the inadequate but in the circumstances of publication the obligatory title of *The Medical Supplement to the Daily Review of the Foreign Press*. It was at first issued officially to officers of the medical departments of the military forces, but with the number for June it was considerably enlarged and placed on sale;[2] its publication will, we understand, be continued monthly. The June number contained, roughly, about twice as much matter as was published monthly in the Epitome, and space and opportunity has been afforded for the reproduction of photographs on plate paper, a commodity specially difficult to obtain by journals not published by His Majesty's Stationery Office. The July number is of much the same size. Each consists of abstracts classified under several heads—surgery, medicine, neurology, pathology, radiology, and so on—but there have been published also articles in which some particular subject is discussed on the basis of a series of abstracts arranged in logical order. In the June number there was such an article on prosthetic appliances, signed with the initials "E. M. L.", which will be recognized as those of a surgeon who has given particular attention to the subject. The article was illustrated by a large number of drawings and photographs. It was founded largely on German articles and devices, but contained a certain number of references to French papers and inventions. The abstracts in other sections seem to be derived mainly

[1] *Nature*, vol. xcviii, p. 408.

[2] H.M. Stationery Office. To be obtained through any bookseller. Price 1s.

from German sources, although French and Italian periodicals are also placed under contribution, especially in the section dealing with neurology. We do not question the wisdom of this course at the present time, for German medical literature is not easily available in this country or with the British armies abroad; but even to-day it would seem advisable to attempt to maintain a just international balance in the articles selected for abstract, otherwise there is a risk of conveying the erroneous impression that the greater part of the valuable work that is being done even during the war, and partly in consequence of the war, hails from Germany.

The *Medical Supplement* has come into existence as a temporary expedient to meet the particular want of the day, but though now fathered by the War Office, we hope that its publication may be taken as an indication that the British Government recognizes the existence of a national obligation to help in the systematic dissemination of scientific information. Experience, both here and even in America, seems to show that periodical publications of the scope and volume necessary cannot be produced on a purely commercial basis.

THE PROBLEMS OF TUBERCULOSIS.

THE clinical features and the pathological conditions in ordinary cases of tuberculosis are fairly well known, but much remains to be explained before their true significance can be regarded as settled. The death-rate up to the last few years has been steadily falling, but very unequally so, even in districts where the conditions of life are much alike. It has been assumed that a gradual process of immunization is going on, and that the almost universal infection during early childhood is becoming to some extent protective. But this process must be effective under all conditions, and other influences must be at work to account for the irregular distribution.

Sir Robert Philip, in his inaugural address from the newly established Chair of Tuberculosis in the University of Edinburgh, brought forward statistics which he held proved that the fascinating theory of communal immunization on natural lines failed when tested by facts. An abstract of his address containing the statistics on which his conclusions are founded was published in the JOURNAL of April 27th, p. 492, and the full text has now been printed in a pamphlet.[1] The admitted imperfection in the present system of notification may be in part responsible for apparent irregularities in distribution. Recent correspondence in our columns has shown that doctors and patients alike are often unwilling that cases should be notified until the diagnosis and the fatal prognosis are equally positive; but there are other sources of fallacy, to one of which the tuberculosis officer for Southwark called attention in a letter published in the JOURNAL of July 13th (p. 46). The tuberculosis notification rate in London was 7.39 in 1912, 5.01 in 1913, 3.64 in 1914, 3.41 in 1915, 3.19 in 1916, and 3.69 in 1917. This correspondent's suggestion that the old cases of the previous year or two were notified during 1912—the first year of general notification—will, there is no doubt, account for some of the decline the rates appear to show, and if this view is accepted the rate would appear to have been fairly steady during the last four years. Whether the rates for the whole of England and Wales, which show only a small excess in 1912, are susceptible of the same explanation, it is not easy to say. The subject undoubtedly requires much more study, and we may hope that with the establishment of a special chair for the study of tuberculosis in the University of Edinburgh, an example which other universities would do well to follow, many knotty points as to the prevalence, the treatment, and the prognosis of pulmonary tuberculosis may in time be unravelled.

To one of these points Dr. A. K. Krause has recently called attention.[2] What, he asks, do we really mean by predisposition? He would regard it as amounting to massive infection of the individual, apart from any special aptitude for its development, and holds that the influence of family history has not been sufficiently studied in relation to actual family contact. It must be admitted, however, that infection with tubercle may take place without any positive evidence of the fact, and that its presence may only become manifest in response to some outside stimulus in later years. Lymphatic structures are often the first to indicate that infection has taken place, but it has not as yet been proved that such tissues have any special relation to tubercle, or that the bacilli are detained mechanically in their passage through them. That they can pass through certain other tissues without leaving any trace has been long recognized.

The problems of hypersensitiveness and of increased resistance, both of which may follow the development of a tubercle, are still far from solved.

[1] *Present-day Outlook on Tuberculosis.* Being the Inaugural Address delivered on the Institution of the Chair of Tuberculosis in the University of Edinburgh, April 16th, 1918. By Profe sor Sir Robert W Philip, M.D., F.R.C.P., F.R.S.E. Edinburgh: W. Green and Son. (Pp. 20.)

THE EVOLUTION OF SCIENTIFIC MEDICINE IN AMERICA.

AT the Summer School, Cambridge, which this year has been devoted to America, Professor Osler sketched the growth of scientific medicine, marking periods of British (to 1820), French (1820–60), and German influences (1860–90). After a brief reference to colonial medicine, the rise of the schools was described, and the dominant influences were shown to be the Edinburgh professors and John Hunter. Descriptions were given of the Pennsylvania Hospital, founded by Benjamin Franklin, of the New England School, as represented by Jacob Bigelow and James Jackson, and of the frontier physicians in McDowell and Drake. The rise of clinical medicine in France attracted American students to Paris, where Broussais, Laënnec, and Louis were the leading spirits. Modern experimental physiology started with Magendie, whose great pupil Bernard controlled American physiology as represented in the Sixties and Seventies by Dalton and Austin Flint, jun. Specialism was fostered by the Vienna school, particularly in diseases of the eye, skin, and larynx. Gynaecology and dentistry were home-grown. After 1860 Virchow and his pupils dominated American medicine, while experimental work in connexion with the clinic was inaugurated by Traube. Koch and the new school of German bacteriologists found among Americans their most ardent pupils. The medical schools of the United States grew up without university or state control, and were proprietary institutions competing freely with each other. The revolution began when President Eliot, of Harvard, took the chair at the meetings of the medical faculty, and to him and Dr. William Pepper, of Philadelphia, are due the change of heart and practice that gradually came over the schools. The Johns Hopkins foundations were a great stimulus, and to President Gilman and Dr. John Billings the American profession owes a debt of gratitude. The reorganization of the hospitals, as parts of the university, changed the whole outlook, and the lecturer described briefly the clinics of Halsted, of Cushing, and of the Mayo brothers. The greatest

[2] *The American Review of Tuberculosis*, February, March, and April, 1918.

contribution of the United States to practical medicine was the introduction of surgical anaesthesia on October 16th, 1846, at the Massachusetts General Hospital. The development of scientific medicine during the past twenty years had been largely autogenous. To Government workers could be credited the great work of Reed and his colleagues which rendered it possible to control yellow fever; the studies of Theobald Smith on Texas fever, on anaphylaxis, and tuberculosis; the peaceful victory at Panama; the remarkable contributions of Erwin Smith on the diseases of plants, and the study of Stiles on the hookworm disease. A tribute was paid to the powerful influence of the great library of the Surgeon-General's Library and its Index-Catalogue. Two great private foundations have, so to speak, set the pace. The Carnegie Foundations have stimulated an extraordinary interest in medical education through the reports of Mr. Abraham Flexner; and the work of the Nutrition Laboratory has led the way in a series of valuable contributions in metabolism. The Rockefeller Foundations have endowed preventive medicine in a right royal way. The lecturer referred to the researches of Dr. Flexner and his associates in meningitis, poliomyelitis, and pneumonia; to the world-wide activities of the International Health Board; to the foundation of the medical schools in China; to the dispensary work in the Philippines; to the endowment of the Johns Hopkins School of Hygiene and Public Health, and to the tuberculosis work in France and Italy. He then referred to the numerous institutes for research that had been started within the past fifteen years, and to the remarkable growth of scientific journals; and, lastly, he spoke with enthusiasm of those great favourites with the profession all over the world—the *American Journal of the Medical Sciences* and the *Journal of the American Medical Association.*

THE BRITISH SCIENTIFIC PRODUCTS EXHIBITION.

A COMPREHENSIVE exhibition of scientific products and processes, organized by the British Science Guild with the object of stimulating public confidence in the scientific and industrial capacity and adaptability of this country, was opened at King's College, London, on August 12th, and will remain on view for a month. It is divided into fourteen sections; to the largest, which is concerned with chemistry, more than sixty firms have contributed. The section covers, in the first place, the work which has been done recently on heavy chemicals, principally the mineral acids; secondly, on fine chemicals, including the numerous artificial dyes derived from coal-tar extracts, and the intermediates, to which belong a large number of substances used as medicinal agents and antiseptics; and, thirdly, other applications of chemistry to arts and manufactures, as, for instance, to agriculture and metallurgy. Here may be studied graphic demonstrations of what has been done during the war to render the empire self-supporting in its drug supplies. Messrs. Burroughs, Wellcome, and Co. show the steps in the synthesis of their equivalents for salvarsan and neo-salvarsan, as well as the researches which have issued in ernutin and other synthetic products. Other sections of the exhibition are concerned with physical and electrical appliances, optical and photographic apparatus (where the revived glass industry of this country is very much to the fore), measuring and mechanical instruments, including an extensive exhibit from the National Physical Laboratory, and examples of such industries as paper and textile manufactures. There is a display to which the Food Ministry contributes, illustrating food production and conservation. The results of recent experiments in the replacement of petrol by gas, a subject which the Gas Traction Committee has been investigating for almost a year, are shown. A section, comparatively small, is devoted to surgical and bacteriological appliances, with which is grouped *x*-ray apparatus. Here is laboratory ware of British-made hard porcelain, recent refinements in surgical instrumentation, and appliances such as splints and surgical boots and gloves used at the military orthopaedic hospitals; the various stages in the production of typical serums, vaccines, and tuberculins are illustrated by the graphic method. It would be tedious to name all the exhibitors and invidious to name only a few. The exhibition as a whole is one not only to be seen but to be studied, ranging as it does from aircraft and standard ships to rare earths and refractory sands. It is all the more remarkable owing to the limitations under which obviously it has been got together; it is in itself a demonstration of that progressive union of British science and industry which, through the full development of our national resources, both intellectual and material, it is intended to promote.

GUNSHOT WOUNDS OF THE HEAD.

THE treatment of gunshot wounds of the head is a subject which has greatly exercised the minds of surgeons for the last three years, as papers published in our own columns during that time have witnessed. The Medical Research Committee has now issued a report by Captains W. J. Adie and W. W. Wagstaffe, containing statistics of 656 such cases, with considerations arising therefrom. In the spring of 1916 it was arranged that cases of gunshot wounds of the head which occurred in an Army area should be evacuated to a special hospital centre. The cases sent for operation were selected at the casualty clearing station as being able to stand the journey, the criterion being the condition of the pulse, anything below 100—no matter what the severity of the wound—being considered to justify the journey. The cases were of a varying degree of severity, from a small punctured wound, to a large gash with brain matter exuding. A fairly large number of cases had been operated on before admission, and they also varied enormously in severity. The authors consider that the necessary journey of, on the average, two or three hours does not harm the great majority of the patients who have not been operated on, whereas patients who have been operated on show much more frequently a change for the worse. A comparison of the number of deaths from septic infection after gunshot wound of the head penetrating the dura is held to prove that the best time to operate is as soon after arrival as possible, an average of some four hours being probably the best. The results in the patients transferred to a special centre, where they can be operated on and kept till convalescent, are held to be better than in the case of those operated on at the front and subsequently transferred to the base. All cases with any injury to the scalp require operation. This should always be preceded by *x*-ray examination, except in the rare cases in which extreme restlessness renders this impossible. The patient in the interval between his arrival at the centre and operation is kept in a bed in a ward, where he is warmed up and made as comfortable as possible, restlessness being combated by morphine; three-quarters of an hour before his removal to the theatre he is given a hypodermic injection of morphine hydrochloride $\frac{1}{4}$ gr., atropine sulphate $\frac{1}{120}$ gr., and hyoscine hydrobromide $\frac{1}{100}$ gr. This preliminary injection is regarded as invaluable, both because it renders the patient comparatively somnolent and tranquil when brought to the theatre, and because it keeps him quiet for some hours subsequent to the operation, diminishing greatly post-anaesthetic vomiting and excitement. When the operation is about to be performed the patient is anaesthetized with chloroform and ether, and the head shaved and cleansed. In compound depressed fracture without penetration of the dura, the depression is in all cases removed and a complete cleansing operation performed, but in no case is the dura incised. All scalp wounds are excised and the scalp carefully examined for fracture. The best access to the wound of the skull when the wound of the scalp is small is obtained by reflection of a flap. In all

penetrating wounds of the dura, when the wound of the scalp has been small, the wound has been incised down to the bone. Then, taking fresh instruments, a flap large enough to leave a considerable margin around the injured bone, has been turned down. The hole in the bone is then enlarged so as to leave at least a quarter of an inch of healthy dura all round the perforation. Bony and other fragments shown by the *x* rays are removed if easily accessible. A finger is usually inserted to a depth of one to one and a half inches to search for fragments. The authors believe that it will be by attention to small details that the results will be improved, and the Carrel syringe and catheter, to supersede the finger, as suggested by Major Harvey Cushing in a paper published in this JOURNAL last February (p. 221), may, it is acknowledged, prove one such small detail; but it is also said that the method needs a considerable amount of practice. The whole operation is done under a stream of warm saline, and the importance of rapidity in operation is mentioned. The time taken in the average complete operation from the first incision to the time the patient is ready to leave the theatre has been thirty minutes. The authors, however, take pains to point out that rapidity must not be sacrificed to deliberate and thorough cleansing of the wound. The most important point in after-treatment is absolute quiet in a special ward. Large and repeated doses of morphine are indicated if the patient is restless. In favourable cases the period in bed should be at least five weeks. Cases in which the dura is not penetrated are evacuated to England about a fortnight after the subsidence of all symptoms. Cerebral abscess was the most common cause of death after the thirtieth day. The chance of the formation of an abscess was found to be far greater if the wound was completely sealed than if a small drainage tube ($\frac{1}{4}$ in. in diameter) was left in the excised wound extending down to the hole in the dura. The mortality in cases with penetration of the dura sent to the centre for operation was approximately 50 per cent. Three-quarters of the deaths occurred within the first ten days, and in 54 out of 81 cases so dying no septic changes were apparent. In the vast majority of cases dying after ten days the cause of death was some form of intracranial sepsis.

CONGENITAL DEFECTS OF THE SKIN.

CONGENITAL defects of the skin have but rarely been recorded in medical literature; usually the deficiency occurs on the scalp, and is circular or oval with clean-cut edges, varying in size from a pin-point upwards. The first case noted seems to have been Campbell's, in 1826; Dr. I. A. Abt of Chicago has recently collected[1] nearly forty instances recorded in the literature, adding one of his own. These defects are attributed either to errors in development or to inflammatory adhesions between the external layer of the skin and the amnion, and are usually visible at birth. They seem to bear no relation to trauma during parturition, and undoubtedly originate *in utero*. They present ulcerated areas not involving the subcutaneous tissues; the skin glands usually fail to develop in the denuded areas, and there is no microscopical evidence of degeneration or inflammation. The lesions usually cicatrize in a short time. Dr. Abt's own patient presented a defective skin area over the front of both knees; each measured about one by one and a quarter inches, and had drawn and puckered edges, a punched-out appearance, and a beefy red base. In five or six weeks the ulcers skinned over satisfactorily. The father and mother were in good health, and the mother had previously borne four normal children. It is to be noted that these skin defects have been found in stillborn children as well as those born alive; and, unless they are very extensive, there is no apparent reason why so slight a malformation should be incompatible with the life or good general health of the infant.

[1] *Trans. Amer. Pediatric Society*, 1918, xxix, 67

THE USE OF ASPHYXIATING GAS.

THE Ministry of Information recently issued a communication relating to a statement sent out by the official German wireless on July 17th to the effect that the idea of using poison gas in warfare originated with the British admiral Lord Dundonald, better known to fame as Lord Cochrane. It is a matter of history that in 1812 Dundonald submitted to the Prince Regent, afterwards George IV, secret war plans which included the use of an asphyxiating gas. A committee of experts to whom this proposal was referred expressed the opinion that the mode of attack was "infallible and irresistible," but it was not sanctioned. In 1840, when there was a threat of war with France, Dundonald again submitted his plan to the British Government and offered by means of it to annihilate the French fleet. The Duke of Wellington thought well of the idea, but with his practical good sense pointed out that "two could play at that game," a fact which the Germans have learnt to their cost. In 1846 the plans were again referred to a committee, which reported that it was not desirable that any experiment should be made on the ground that part of the plans "would not accord with the principles of civilized warfare." Later, when again there was talk of war, Dundonald was asked about his plan, but once more it was rejected, the only objection to it being that it was "too terrible for use by a civilized community." Dundonald's account of the plan is given in the correspondence of Lord Panmure, who was War Minister during the Crimean War.[1] In a memorial dated August 7th, 1855, he states that when viewing some sulphur kilns in 1811 he observed that the fumes which escaped in the rude process of extracting the material, though first elevated by heat, soon fell to the ground, destroying all vegetation and endangering animal life to a great distance. With reference to the materials required for the expulsion of the Russians from Sebastopol, experimental trials had, he said, shown that about five parts of coke effectually vaporize one part of sulphur. Four or five hundred tons of sulphur and two thousand tons of coke would be sufficient. Besides these materials it would be necessary to have as much bituminous coal and a couple of thousand barrels of gas or other tar for the purpose of masking the fortifications to be attacked, with dry firewood to kindle the fires, which ought to be kept in readiness for the first favourable and steady breeze. Dundonald offered to direct the application of the plan himself, but the proposal was rejected. The use of asphyxiating gas is a very ancient device. Smoking out the enemy was one of the regular manœuvres of war in antiquity. Polybius relates that at the siege of Ambracia by the Romans under Marius Fulvius Nobilior (B.C. 189) the Aetolians filled jars with feathers which they set on fire, blowing the smoke with bellows into the face of the Romans in the countermines. At the great naval battle fought in the waters of Ponza between Alfonso of Aragon and Genoa in 1435 the Genoese carried vessels filled with quicklime and red-hot cinders, the smoke from which was blown by the wind against the enemy. Leonardo da Vinci, who among his many other accomplishments was a notable military engineer, suggested the use of poisonous powders, such as yellow arsenic and verdigris, to be thrown from the topmasts of ships so as to choke the enemy. This formed a part of the war instructions given by Leonardo to the Republic of Venice in 1499, when the Turks had passed the Isonzo and threatened St. Mark's. In Thévet's *Singularitez de la France Antarctique, autrement nommée Amérique*, published in 1558, it is stated that the Canadian savages fortified their cabins and huts with faggots of wood and feathers smeared with the grease of the sea wolf or other poison. They set fire to these on the approach of the enemy and thus produced a thick black smoke with a stench so foul that it killed all who smelt it. It may be added that asphyxiating bombs

[1] *The Panmure Papers*. Vol. i. London, MCMVIII.

have been used in France for the arrest of criminals and dangerous lunatics, but only as a means of temporary disablement.[1] The use of poison gases, which had been rejected several times by the British Government on the score of inhumanity, was expressly forbidden by the Hague Convention of 1899, to which Germany was a party. The deliberate violation of this agreement by the Germans in 1915 is a particularly flagrant addition to the lengthening tale of their acts of barbarism. Their attempt to throw the blame for the first use of poison gases in the present war on the British is a conspicuous example of the singular union of mendacity and stupidity which is a part of the national character.

THE EDUCATIONAL VALUE OF SANATORIUM LIFE.

THE curative influence of sanatorium life does not vary very greatly between one institution and another. Reports of tuberculosis officers in various towns and districts all tell of a high proportion of improvement, if not actual arrest, of the disease, and all emphasize the advantage of early recognition and treatment. After-care committees and post-card inquiries have served to prove that the improvement is maintained in a considerable number of the first stage cases, but that many relapse on returning to home conditions or unsuitable employment. In the annual report of the Newcastle-upon-Tyne and Northumberland Sanatorium for 1917 this matter is specially referred to, and it would appear that all patients on discharge after treatment are fully instructed as to the need for future care. The period of sanatorium treatment is only "a short phase in a consumptive's life," and the need for special care is greater after discharge than during the time of residence. This is especially true of the first twelve or eighteen months after the cessation of treatment in a sanatorium; it happens too often that the patient who feels that he is quite well fails to realize the need for any further precaution. At Ventnor it has long been the practice to hold regular classes for instruction of new patients, and a similar arrangement might well be adopted at all sanatoriums, either at the beginning or towards the end of the stay, and such instruction should be compulsory and oft repeated. Great care is exercised at the Northumberland Sanatorium to defer any form of graduated exercise until temperature has quite subsided. Walking in short stages, up to a maximum of six miles a day, leads on to various forms of outdoor work. Full diet, but not over-stuffing, was found to give the best results, without regard to actual weight accretion. Tuberculin in the form of B.E. was used in a certain number of cases that were improving on the ordinary lines of treatment, and no special effect could be recorded as regards rate of improvement. Additional resistance to later attacks may or may not have been acquired. As in many other special hospitals, the effect of artificial pneumothorax in advanced cases has been found to be satisfactory as regards immediate relief of distressing symptoms, but unsatisfactory cases also have to be recorded. The report makes due acknowledgement of the services rendered by the late Sir George Hare Philipson in organizing and starting the work in Newcastle and the county, and contains, among other illustrations, an admirable portrait of him.

CANADIAN MEDICAL WAR COLLECTION.

SIR ROBERT BORDEN, Prime Minister of Canada, paid a visit to the Royal College of Surgeons of England on August 14th to see the part of the Canadian medical war collection at present displayed there. Since 1914 the Canadian Army Medical Service has co-operated with the R.A.M.C. in the endeavour to obtain adequate medical records of the war, and has been steadily working to obtain material of all kinds worthily to illustrate the medical aspects of the great struggle. In 1915 the Royal College of Surgeons of England came to the assistance of Canada and the other Dominions by offering to receive and care for material—to be, in fact, a clearing house in which this material could be collected, and then forwarded to the different Dominions. The collection comprises specimens of wounds, of dried bones including a remarkable series of head wounds, drawings, photographs and models. The specimens have been prepared and mounted at the College under the supervision of Professor Keith, Professor Shattock, and Mr. Beadles. Already a large number have been sent to Canada, and excited much interest at the medical gathering at Hamilton, Ontario, at the end of May, at which five of the most important medical associations of Canada met together. Sir George Makins, in receiving Sir Robert Borden, said that the specimens collected from earlier wars were few in number, owing largely, no doubt, to the difficulty of transport from distant theatres. Full opportunity had been taken of the nearness of the chief fields of operations in this war, and of the improved organization of hospitals and pathological departments. Surgeons in any future campaign would therefore not suffer from the disadvantages experienced by those engaged in the early days of this war, for the collections formed would not only be interesting as records, but a means of instruction of great permanent value. Sir Robert Borden expressed his interest in the collection and his gratification that the appropriation made by his Government to defray the expense of forming it had been so well applied. Colonel Adami expressed the thanks of the C.A.M.C. to the Canadian Government and to the College of Surgeons. The exhibition displayed was, he said, far from representing the sum total of Canadian war specimens, but included some of the most interesting; among others, the wax and plaster casts of war injuries, made at Orpington by Major Lessore and his staff; bird's-eye views and drawings by Captain Mathews, C.A.M.C., the well-known Canadian artist, of the different buildings in Great Britain and overseas occupied as Canadian war hospitals; pathological specimens, photographs and *x* rays, of war wounds and diseases, the whole affording some idea of the strikingly human interest there is in such records of the sufferings undergone by the Canadian troops, and the endeavours made by the medical service to counteract those sufferings, and to restore and preserve the health of Canadian soldiers.

THE FUTURE OF MEDICAL TEACHING IN PARIS.

THE Council of the Paris Medical Faculty has drawn up a report setting forth a number of reforms and extensions which it is proposed to make in the scope and methods of its teaching work. For the teaching of pathology cinematographic apparatus will be installed in the lecture theatres and collections of films are to be made. One of the two chairs of internal pathology is to be transformed into a clinic of infectious diseases. The practical curriculum is to be completed and supplemented by a large scheme of free clinical teaching in which all the members of hospital staffs who wish to do so will take part. With the object of ensuring almost full autonomy to the services of the Faculty by securing the most favourable organization for the treatment of patients and the instruction of students a commission of studies has been set up which includes representatives of the Ministries of Public Instruction and of the Interior, the Prefecture of the Seine, the Municipal Council, the University, the Faculty, and the medical staffs of the hospitals. Arrangements will be made for the purpose of attracting to Paris men of science, doctors, and students from foreign countries. The Government has favourably received a request that it should provide funds for the improvement of existing services and for the creation of others, particularly an institute of medical biology. Internal improvements have been made in the library and museums of the Faculty. A special committee has been engaged in elaborating the statutes of a society of friends of the Paris Medical Faculty.

[1] BRITISH MEDICAL JOURNAL, September 13th, 1913, p. 701.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON H. E. B. FINLAISON, R.N.

Surgeon Hilton Evans Bear Finlaison, R.N. (temporary), died at Letchworth Cottage Hospital on August 2nd, aged 33. He was the son of the late Mr. Thomas Bain Finlaison of Kensington, and was educated at St. Mary's Hospital, taking the diploma of L.M.S.S.A. in 1913.

SURGEON PROBATIONER H. E. BECKWITH, R.N.V.R.

Surgeon Probationer H. E. Beckwith, R.N.V.R., was reported as having died on service, in the casualty list published on August 9th.

ARMY.

Killed in Action.

CAPTAIN K. W. JONES, D.S.O., R.A.M.C.(T.F.).

Captain Kingsmill William Jones, D.S.O., R.A.M.C.(T.F.), has been reported as recently killed in action. He was educated at Trinity College, Dublin, where he gained a scholarship in 1897, and graduated B.A. in 1898, M.B., B.Ch., and B.A.O. in 1901, and M.A., M.D., and D.P.H. in 1903. After filling the posts of resident medical officer at Cork Street Fever Hospital, Dublin, and of house-surgeon of the Swansea General and Eye Hospital, he went into practice at Ardwick, Manchester, and in 1913 was elected member of Manchester City Council for Ardwick Ward. He took a commission as lieutenant in the 3rd East Lancashire Field Ambulance on February 11th, 1912, and went to France in September, 1914, with the 16th Special Reserve Field Ambulance. He was wounded at Hooge in August, 1915, when he received the D.S.O., was again wounded in September, 1916, and later was severely gassed.

CAPTAIN W. H. LLOYD, R.A.M.C.(T.F.).

Captain Walter Henry Lloyd, R.A.M.C.(T.F.) was killed in action on August 4th, aged 27. He was the son of Mr. Walter Lloyd, J.P., of Carmarthen, was educated at the Middlesex Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915, subsequently graduating M.B. and B.S.Lond. He took a commission as lieutenant in the 3rd London General Hospital in August, 1915, and in June, 1916, went to France, where he was serving as surgeon to a casualty clearing station.

CAPTAIN H. R. PARTRIDGE, M.C., R.A.M.C.(T.F.).

Captain Hugh Roger Partridge, M.C., R.A.M.C.(T.F.), was reported as killed in action, in the casualty list published on August 9th. He took the diploma of L.M.S.S.A. in 1914, received a commission as lieutenant in the 1st West Riding (Leeds) Field Ambulance on November 23rd, 1914, and was awarded the Military Cross on October 20th, 1916.

Died of Wounds.

MAJOR J. D. PROUD, M.C., R.A.M.C.

Major John Dover Proud, M.C., R.A.M.C., died of wounds on August 1st, aged 26. He was the only son of Dr. Proud of Maryport, and was educated at Charterhouse and at Durham University, where he graduated M.B. and B.S. in 1915, subsequently taking a commission as lieutenant in the Special Reserve of the R.A.M.C. and afterwards transferring to the permanent R.A.M.C. He was promoted to captain after a year's service, and recently to an acting majority. He went to France three years ago, and gained the Military Cross on June 18th, 1917, and a bar on September 26th, 1917.

CAPTAIN F. A. O'DONNELL, R.A.M.C.

Captain Frederick Albert O'Donnell, R.A.M.C., died of wounds on March 23rd. He was the youngest son of the late Mr. John O'Donnell, of Sligo, and took the diploma of L.R.C.P.I. and L.R.C.S.I. in 1912. He joined the R.A.M.C. as a temporary lieutenant early in 1916, and was promoted to captain after a year's service.

CAPTAIN R. C. ROGERS, R.A.M.C.

Captain Robert Carmichael Rogers, R.A.M.C., died at No. 14 General Hospital, in France, on August 2nd, of wounds received on September 30th, 1917. He was the eldest son of Dr. Rogers of Murthly, and was educated at Perth Academy and at Edinburgh University, where he graduated M.A., M.B., and Ch.B. in 1914. After filling the post of house-physician at the Edinburgh Royal Infirmary, he went into practice at West Calder. He took a temporary commission as lieutenant in the R.A.M.C. in December, 1916, and was promoted to captain after a year's service.

Died on Service.

LIEUTENANT J. CROSS, R.A.M.C.

Lieutenant John Cross, R.A.M.C., who died recently in hospital in Allahabad, was the son of Mr. John Cross, of Hamilton. He graduated M.B., Ch.B.Glas. in 1903, and after serving as house-physician and house-surgeon to the Royal Victoria Infirmary, Glasgow, and as locumtenent in Shetland, he proceeded to London for a course of study in tropical disease, and subsequently accepted an appointment as medical officer at Lagos, Southern Nigeria. Five years later he returned to this country and commenced practice at Birkenhead. In June, 1917, he received a commission as temporary lieutenant in the R.A.M.C., and in view of his knowledge of tropical diseases was sent to Allahabad.

[*Correction.*—Captain E. Newton, R.A.M.C., reported as killed in the casualty list published on July 2nd (JOURNAL, July 13th, p. 43), is Captain Eric Newton, M.B., Ch.B.Aberd., and not Captain Edward Newton, an old student of St. George's Hospital, as we had supposed.]

Wounded.

Captain R. Anderson, R.A.M.C. (temporary).
Captain P. Ardagh, N.Z.M.C.
Captain W. Baxter, R.A.M.C. (temporary).

Prisoners of War.

Major G. Stiell, R.A.M.C. (temporary).
Captain T. Blackwood, R.A.M.C. (temporary).
Captain C. R. Crowther, R.A.M.C.(T.F.).
Captain G. F. P. Heathcote, M.C., R.A.M.C. (temporary).
Captain W. T. P. Meade-King, R.A.M.C.(T.F.).
Captain R. W. Pearson, M.C., R.A.M.C. (temporary).
Captain A. B. Simpson, R.A.M.C. (temporary).
Lieutenant F. W. M. Lamb, R.A.M.C. (temporary).
Lieutenant F. B. O'Dowd, R.A.M.C. (temporary).
Lieutenant and Quartermaster F. W. B. Carter, R.A.M.C.

DEATHS OF SONS OF MEDICAL MEN.

Brewer, Charles E. W., Lieutenant R.N., youngest son of the late Dr. R. E. W. Brewer of Newport, Monmouth, killed at sea, August 2nd. He was educated at Llandaff College and at Osborne, joined H.M.S. *Indomitable* as a midshipman in 1913, and became sub-lieutenant in 1915 and lieutenant in 1917. He had served in the Dardanelles and in the battles of the Dogger Bank and Jutland.

Laurie, Thomas Helm, Second Lieutenant Royal Scots, younger son of Dr. T. Harcourt Laurie of Polmont, killed July 25th, aged 20. He was educated at Stewart's College, Edinburgh, and had passed the preliminary examination for entrance at the university as a medical student, when he enlisted in 1916, subsequently gaining a commission. He went to the front last April.

Magrath, Meyrick Myler, D.S.O., Major Royal Field Artillery, only son of Lieut.-Colonel C. W. S. Magrath, R.A.M.C. (retired), killed August 2nd, aged 29. He was born on May 24th, 1889, educated at Wellington, and got his first commission from Woolwich on December 18th, 1908. He was promoted to lieutenant on December 18th, 1911, to captain on December 18th, 1914, and had gained his majority during the war.

Moir, Douglas, M.C., Lieutenant Cameron Highlanders, attached King's African Rifles, died of wounds, July 22nd. He was the younger son of Lieut.-Colonel J. Munro Moir of Inverness, well known to all members of the British Medical Association in the north of Scotland. Lieutenant Douglas Moir, who was 24 years of age, was in Australia when the war broke out. He joined there and came to this country with the Australian contingents. He received a commission in the Cameron Highlanders and served in Gallipoli, and also in France, where he was twice wounded and received the M.C.; he afterwards transferred to the King's African Rifles, and was serving with them when he was killed in the action which took place on July 22nd in Portuguese East Africa, into which district the German forces have now been driven.

Muspratt, Terence Petty, M.C., Captain Worcestershire Regiment, second son of Dr. Charles D. Muspratt of Bournemouth, died in a French hospital, on May 30th, of wounds received the previous day, aged 22. He got his commission in August, 1914, became lieutenant in March, 1915, and was mentioned in dispatches on July 27th, 1916.

Wybrants, John Holman, Second Lieutenant London Regiment, only son of the late Dr. Wybrants of Wincanton, Somerset, died on July 30th, of wounds received July 23rd, aged 40.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A special Supplement to the *London Gazette*, dated July 26th, contains long lists of awards in recognition of "gallantry and devotion to duty in the field." The list includes the following medical officers who receive the honours indicated:

(*Continued from page 144.*)

Military Cross.

Temporary Captain Edward Arthur Aldridge, R.A.M.C.

He remained at the dressing station until the enemy were upon him, and having cleared his aid post, worked his way back, collected the wounded and attended to them under heavy shell fire. His courage and self-sacrifice set a splendid example, and were worthy of the highest praise.

Temporary Captain William Brodie Gurney Angus, R.A.M.C.

He was the means of saving the lives of many officers and men, especially on one occasion when the brigade suffered severe casualties from shell fire. He was untiring in carrying out his duties and removing the wounded to a place of safety.

Captain John Webster Archibald, R.A.M.C.

The battery position of the brigade was subjected to an intense bombardment in connexion with the enemy attack, and although shell fire round his own head quarters was severe, he visited all the battery positions by himself, instead of having the casualties brought to him. His complete disregard for personal safety in order to save the wounded being brought through the enemy barrage undoubtedly resulted in the saving of life and of many casualties. His courage and cheerfulness under a heavy and continuous strain was of the greatest value and a fine example to all.

Captain (acting Major) Charles Philip Brentnall, R.A.M.C.

Although heavily shelled during two days at an advanced collecting post under conditions of great danger, he succeeded in keeping his post clear and getting away all the wounded. The collection and evacuation of wounded was rendered particularly difficult owing to the fact that the troops were executing a withdrawal.

Captain Charles Herbert Budd, R.A.M.C.

He attended to the wounded under fire Under heavy shelling he went forward and dressed wounded, and dressed one man under full observation of the enemy.

Temporary Captain George Milne Cameron, R.A.M.C.

When in charge of bearers he worked incessantly for twelve hours collecting and evacuating the wounded under heavy shell and machine-gun fire. Many cases were successfully got away which, but for his determination and absolute disregard of danger, would have fallen into the hands of the enemy.

Captain David Campbell, R.A.M.C.

When on two occasions he was the only medical officer left with the brigade he organized regimental aid posts and established lines of evacuation, and during a long exposure to shell and machine-gun fire set an inspiring example to all.

Temporary Captain Dugald Stewart Campbell, R.A.M.C.

He worked without rest, and when it was necessary to retire successfully brought away all the wounded, in spite of the district being subjected to a heavy gas bombardment. He was undoubtedly the cause of saving the lives of many wounded.

Temporary Captain Thomas Hay Campbell, R.A.M.C.

When under shell fire and machine-gun fire he organized a forward aid post and evacuated over 500 wounded. No wounded man was allowed to pass without personal attention, in spite of the difficulties of doing so in an exposed position.

Captain Louis Abel Celestin, R.A.M.C.

He remained with a party which was covering the retirement, and attended to the wounded under heavy rifle and machine-gun fire. Later, he dressed a medical officer's wounds and carried him single-handed for a distance of over half a mile through heavy fire, when the officer he was carrying died of wounds.

Temporary Captain Richard Collier Coatsworth, R.A.M.C.

During an enemy attack he early led his regimental stretcher-bearers through very heavy shell fire to remove all wounded that could be found. He organized the removal of wounded, and by his perpetual cheerfulness and coolness set a fine example to his men, and effected the successful evacuation of many wounded.

Temporary Captain Alan Gibb Cook, R.A.M.C.

While clearing wounded under heavy machine-gun and shell fire during an enemy attack, and when the officer in charge of the bearers became a casualty, he carried on the evacuation of the wounded, though badly gassed himself. He frequently led squads to the front line in search of wounded, and showed great disregard of danger.

Temporary Captain William Francis Cornwall, R.A.M.C.

When the enemy carried out a heavy bombardment with large calibre shells and gas he established, on his own initiative, a dressing station, and continued to deal with cases of various units for five hours, during which time the shelling was intense. To evacuate the wounded he organized stretcher parties of prisoners, no other means being at the time available.

Temporary Captain James Robert Craig, R.A.M.C.

He kept in touch with the retiring troops, evacuating the wounded without relief for eight days and nights. While the advanced dressing station was under heavy fire, and all the other officers had been either killed or wounded, he continued to carry on his work.

Temporary Lieutenant Gwilym Charles Montague Davies, R.A.M.C.

When a neighbouring village was being heavily shelled, he went there to see if he could help. Finding that the field ambulance had withdrawn, he reopened the dressing station and remained there for hours, managing to evacuate a large number of wounded.

Temporary Captain Llywelyn ap Ivan Davies, R.A.M.C.

When all the R.A.M.C. in an area had been taken by the enemy, he was sent up to establish a system of evacuation. In spite of heavy shelling he kept his cars and bearers working for twenty-four hours, only retiring when the infantry passed him, and by so doing prevented many of the wounded from falling into the hands of the enemy.

Temporary Captain Edward Forbes, R.A.M.C.

While the battalion was preparing to march off, three officers and thirteen men were wounded; this officer attended to them all under heavy fire. Later he was wounded while attending to his duties.

Temporary Captain (acting Major) Charles Colder Forsyth, R.A.M.C.

Hearing that help was urgently required at a certain point, he organized stretcher-bearers to clear away the wounded, of which there were over 500. He remained in the area, which was heavily shelled, during the whole afternoon and until all the wounded had been evacuated. His splendid courage and initiative in organizing this evacuation undoubtedly saved the lives of many of the wounded, who would otherwise have perished.

Captain Charles Wainwright Fort, R.A.M.C.

During several days, when acting as bearer officer, the conditions under which the wounded had to be collected and evacuated were particularly difficult, owing to the fact that the troops were executing a withdrawal. By his total disregard of danger and initiative in bringing forward his bearers, often under heavy shell fire, he succeeded in clearing large numbers of the wounded.

Captain Frederick Gamm, R.A.M.C.(S.R.).

For several days he was in charge of an advanced dressing station, until it was almost surrounded by the enemy. During this time, although under a continuous and heavy bombardment, he continued to dress casualties and organize stretcher squads, which he took out to search for wounded. By his courageous action many wounded were collected and evacuated, and his splendid example was a fine stimulus to all.

Temporary Captain David Gillespie, R.A.M.C.

During recent operations he did most useful work in tending wounded and arranging for their removal under fire. The work was often done under heavy machine-gun fire at medium range. His coolness and fine example greatly contributed to successful evacuation being carried out.

Temporary Captain Morley Edward Gorman, R.A.M.C.

He carried on his work when the dressing station was destroyed by shell fire and visited his posts and superintended the evacuation of the wounded under heavy shell fire. Throughout the operations he displayed the utmost coolness and contempt of danger; his cheery optimism and energetic personal example inspired confidence in all.

Temporary Captain (acting Major) Howard Boyd Graham, D.S.O., R.A.M.C.

He was in charge of over 300 bearers, always under heavy shell fire and often under machine-gun fire at close range. It was due to his judgement that the wounded were evacuated with a minimum possible loss in personnel. On one occasion, being cut off by the enemy, he led his party to safety by a wide detour. When his dressing station was heavily shelled, with the infliction of heavy casualties, he organized the rescue work, rallied the shaken bearers, selected the line of evacuation, and, with the aid of another officer, evacuated fifty four casualties to a place of safety. His conduct through this fiery ordeal was magnificent.

Temporary Captain Edward William Dacre Hardy, R.A.M.C.

His dressing station was situated at cross roads, the only place available, and during a whole day was obviously a target for exceptionally intense bombardment. He displayed the greatest courage and supreme contempt of danger, remaining at his post and dressing wounded the entire day while everybody else was dug in.

Temporary Captain George Francis Palmer Heathcote, R.A.M.C.

He was throughout many days of active operations absolutely tireless in his work of rescuing and caring for the wounded, and freely exposed himself to heavy rifle and machine-gun fire in carrying out his duties. By his splendid courage and energy throughout the whole operations, he was instrumental in getting away most of the wounded.

Temporary Lieutenant Robert John Helsby, R.A.M.C.

When the battery area was being heavily shelled he dressed the wounded with complete disregard of personal safety, and in spite of being blown up in a house and badly shaken.

Temporary Captain Francis Henderson, R.A.M.C.

Throughout ten days' fighting this officer set a splendid example. On one day for twelve consecutive hours he was engaged in leading squads of bearers to and from the regimental aid posts. He frequently dressed men in the open when their condition needed it. He brought a wounded officer back in a car, several times stopping it under heavy fire to make the officer more comfortable.

Captain (acting Major) Howard Henry, R.A.M.C.

During several days, when acting as bearer officer, the conditions under which the wounded had to be collected and evacuated were particularly difficult, owing to the fact that the troops were executing a withdrawal. By his total disregard of personal danger and coolness, he set a brilliant example to the bearers under his command and undoubtedly was the means of saving many lives.

Captain Robert Alexander Hepple, R.A.M.C.(S.R.),

The advanced dressing station was hit by three shells simultaneously, when the building was demolished and several men killed or wounded. He at once set to work to recover the wounded from under the débris, and did not leave till all had been cleared, in spite of the continued intense shelling of the vicinity.

Temporary Captain Stewart Hodgson, R.A.M.C.

For a whole day, often under direct rifle and machine-gun fire, he attended the wounded and directed their evacuation. Although wounded he continued his duties with exceptional coolness and skill until the advancing enemy compelled withdrawal.

Temporary Captain Hugh Llewellyn Glyn Hughes, D.S.O., R.A.M.C.

He worked day and night in the open, in spite of the heaviest shell and machine-gun fire, tending the wounded and helping them back to safety, with a spirit of cheerfulness and self-sacrifice rarely seen. After being wounded he still continued to perform his duties, until the wound necessitated his evacuation.

Temporary Captain Thomas William Jackson, R.A.M.C.

During an enemy attack he was with two other medical officers in a dressing station when the troops in front fell back. The dressing station was full of wounded, and this officer continued, with the two others, to tend the wounded, despite the close proximity of the enemy, till, thanks to a counter-attack by our troops, every case was cleared. This was a fine act of courage and devotion to duty.

Temporary Captain George William Blomfield James, R.A.M.C.

Throughout a retirement he remained behind with the rearguard, dressing and evacuating wounded under very heavy fire, until his medical stores were exhausted and he was in danger of being cut off. It was due to his tireless energy that so few wounded fell into the hands of the enemy. His resource and cheerfulness throughout were a real encouragement to all.

Captain Arthur Morrell Johnson, R.A.M.C.

He tended and evacuated the wounded in the front line and under continual fire. When the order to withdraw was issued he remained till the last, and it was entirely due to his courage and energy that all the wounded were cleared.

Temporary Captain Francis Esmond Keane, R.A.M.C.

Throughout the operations he displayed the greatest courage and grit, working unceasingly without sleep, establishing aid posts, and evacuating wounded under heavy shell and machine-gun fire. His services to the battalion were most invaluable.

Temporary Captain Richard Kenefick, R.A.M.C.

While the regiment was consolidating its position he attended to the wounded quite in the open and under very heavy fire, and arranged for their evacuation. He undoubtedly saved many lives which would otherwise have been lost. He was wounded in the foot, but did not relax his energy, and continued to attend to all the wounded in the vicinity.

Captain Joseph Illingworth Lawson, R.A.M.C.(S.R.).

He brought in wounded under heavy shell fire, with no one between him and the enemy, thereby saving them from being made prisoners.

Temporary Captain George Austen Lilly, R.A.M.C.

In order to attend the wounded he frequently crossed an exposed piece of ground 300 yards in length. Later, when the horses had to be moved owing to heavy shelling, he rescued a badly wounded man, carrying him to safety.

Captain Henry Guy Ludolf, R.A.M.C.

For six days he worked under continuous fire, and during the last two days was the only doctor on the spot attending to the wounded of five different battalions. He was himself suffering from a severe attack of neuritis, but stuck to his work till assistance came. During these six days his personal heroism and abnegation of self were beyond all praise, and owing to his gallant conduct the lives of many were saved.

Temporary Captain William Graeme Denroche McCall, R.A.M.C.

During an afternoon when at a forward collecting post large numbers of wounded had to be dealt with, and the approaches to the station were subjected to intense shell and machine-gun fire, he maintained the position for many hours, dressing and evacuating all wounded, though later he was in imminent danger of being surrounded. When the post was quite untenable he successfully withdrew all personnel and stores. His gallantry under conditions of extreme danger saved many lives.

Temporary Captain Roger McGrath, M.B., R.A.M.C.

When in charge of the bearers of his field ambulance during the enemy's advance, and while exposed to heavy shell and machine-gun fire, he organized his bearers and evacuated many wounded who otherwise would have been captured. He set a fine example of energy and courage.

Captain John Alexander Mackenzie, R.A.M.C.(S.R.).

While at an advanced dressing station, under heavy shell fire, and during an enemy attack, he persisted in his work, and successfully evacuated all the wounded before withdrawing his personnel. At another advanced dressing station later he stuck to his duty for seventy-two hours without rest.

Captain Kenneth Arthur McLean, A.A.M.C.

Under heavy fire he personally conducted bearer squads, organized the forward work of evacuation, and exerted himself to the utmost in saving wounded. His fine example served to keep the men under him working at high pressure, and ensured the complete evacuation of the positions.

Temporary Captain Alexander Church Brodie McMurtrie, R.A.M.C.

On several occasions he brought in wounded himself under shell fire, and by his disregard of danger set a fine example to those under him. Owing to his arrangements and untiring efforts many lives were saved.

Temporary Captain Alan Cowan Mann, R.A.M.C.

Throughout eight days' operations this officer did fine work in tending and clearing the wounded. On one occasion, when the line fell back, he remained with the wounded and succeeded in clearing all that could be found before he withdrew. The splendid work done by the stretcher-bearers was due to this officer's organization and leading.

Temporary Captain Harry Godfrey Massy-Miles, R.A.M.C.

During several days of severe fighting he kept in close touch with the battalion, working unceasingly, without rest, during the whole period, dressing the wounded, including the French. He showed great initiative in establishing forward regimental aid posts, reconnoitring their sites beforehand under heavy hostile shell fire, thus greatly assisting the rapid evacuation of casualties. His courage and cheerfulness throughout a period of great strain were beyond praise.

Captain Hamilton Stephen Moore, R.A.M.C.(S.R.).

He constantly led stretcher parties through intense shell and machine-gun fire in order to evacuate the wounded. On one occasion the whole party except himself became casualties. He dressed his men in the open, and invariably stayed till all had been got away. His cool and determined gallantry was a great inspiration to all the men working under him, and his efforts saved many wounded from being captured.

Captain Frederick Cecil Nichols, R.A.M.C.

When the front line was forced back he maintained his dressing station in the new y formed front line until he had attended to every case, in spite of a heavy bombardment. Throughout the four days' fighting he displayed untiring energy and great personal courage.

Temporary Captain Alger Roy Oram, R.A.M.C.

In recent operations this officer under very heavy shell fire continued to attend to the wounded and evacuate cases under the most adverse circumstances. On several occasions, by his fine example and personal courage, he saved many wounded who otherwise would have fallen into the enemy's hands.

Temporary Captain John Lindesay Pearce, R.A.M.C.

While in charge of a bearer post he repeatedly led squads of bearers to parts of the line where wounded were collected, and it was due to his fine example that so many wounded were saved during a period when communication with the front was extremely difficult. He showed courage under shell fire, and was indefatigable in his duties.

Captain Allan Campbell Pearson, R.A.M.C.

When acting as second in command of a casualty clearing station he on several occasions and on different days superintended the evacuation of wounded under heavy shell fire, and also, with the greatest courage and ability, supervised the salving of equipment during bombing and machine-gun fire from hostile aircraft.

Temporary Captain Roland Wilfred Pearson, R.A.M.C.

For the performance of his duties during lengthy operations. On one occasion two direct hits were obtained on his post, and a patient, who was being dressed, was killed. On another day he followed the battalion in a counter-attack, and rendered the most magnificent services to the wounded, under heavy machine-gun fire. By his courage, fine example, and great devotion, he has at all times inspired his stretcher-bearers, and it was mainly due to him that so many of the wounded were got away by the bearers. (Captain Pearson is at present a prisoner of war in Germany.)

Temporary Captain James Potter, R.A.M.C.

During lengthy operations he continuously attended the wounded under heavy shell, machine-gun, and rifle fire, maintaining his regimental aid post until the enemy had nearly reached it. His splendid example of courage and devotion to duty were beyond praise.

Captain (acting Major) William James Purves, R.A.M.C.

At a main dressing station, by his courage, untiring energy, and grasp of the situation, over 1,000 wounded were passed through the station without a hitch; and when, owing to continuous shelling, he had to retire, all cases were got safely away. This was especially difficult, as the troops were executing a withdrawal.

Captain John Wootton Rammell, R.A.M.C.

He dressed the wounded and carried out his duties under heavy rifle and machine-gun fire. Owing to his ceaseless endeavour and skill all the wounded were evacuated. All ranks speak with admiration of his courage and good work.

Temporary Captain John King Rennie, R.A.M.C.

An advanced dressing station having retired, he organised another in a village, which he only left when the enemy entered it, working all the time under a heavy fire. Subsequently he again organized the evacuation of the wounded under difficult conditions, and saved many from falling into the hands of the enemy.

Captain Henry Whitteron Robinson, R.A.M.C.

In spite of continuous shell fire, during which his aid post sustained two direct hits, this officer worked without ceasing, giving unremitting attention to the wounded and organizing bearer squads.

Captain Peter John Ryan, R.A.M.C.

During lengthy operations, while in charge of bearers and advanced dressing stations, he organized the whole forward work, and it was due to his individual efforts and energy that so large a number of casualties were prevented from falling into hostile hands. He worked continuously throughout the whole retreat, and his success was such that no wounded man fell into the enemy's hands after once having been put under the care of the field ambulance bearers. His work was carried out under extremely difficult conditions and often under heavy shell fire. His devotion to duty was quite beyond praise.

Temporary Captain Cuthbert Scales, R.A.M.C.

When in charge of stretcher-bearers he collected and evacuated many wounded under heavy fire, and remained at his post until forced by the advance of the enemy to withdraw his collecting post further back. There he continued collecting and evacuating as long as possible, showing a fine example to his men.

Captain Hubert Shield, R.A.M.C.

While under heavy fire at advanced dressing stations he managed to save all wounded from falling into the enemy's hands, and remained doing his duty till his stations were cleared. In one dressing station, which he alone ran for sixteen hours, he dressed and evacuated over 300 men.

Captain William Smith, S.A.M.C.

During active operations he displayed great courage in carrying on his duties, after being blown up by a shell, which wounded him and killed two of his orderlies, and he remained at duty until the battalion was relieved.

Captain Thomas Copeland Storey, R.A.M.C.(S.R.).

After the withdrawal from a wood, it was discovered that some of the wounded had been left behind. He went forward and spent an hour and a half in front of the line, searching the wood, and brought them all back, in spite of considerable hostile fire; otherwise they would undoubtedly have fallen into the hands of the enemy.

Temporary Captain Raymond Brewitt Taylor, R.A.M.C.

He searched for a missing stretcher-bearer for two hours under heavy shell fire, at last finding him in a shell-hole and assisting to carry him back. Throughout nine days' fighting he was constantly going forward, under fire, searching for and bringing in wounded.

Captain William Walker, R.A.M.C.(S.R.).

He proceeded to a village under heavy fire and succeeded in attending and evacuating several wounded. He only desisted when the enemy entered the village. Later, he succeeded in releasing a party of stretcher-bearers who had been cut off. Throughout the operations he has shown the utmost energy and courage.

Captain Charles Eric Watson, A.A.M.C.

Under very heavy artillery fire he continued to dress the wounded for two hours and a half. Though many of the bearers were killed and wounded, he stayed with the stretcher cases, and it was owing to his fine courage and energy that many of the wounded were saved.

Captain Harry Ernest Bantry White, R.A.M.C.(S.R.).

He was medical officer attached to the battalion during recent operations, and for eight days worked continuously without rest and often without food, generally under heavy fire, attending to the wounded. His efforts were tireless, and his courage and devotion to duty were the means of saving many lives.

Temporary Captain David Roberts Williams, R.A.M.C.

On one occasion while in charge of bearers in evacuating wounded he went back and searched for wounded, and, in spite of darkness, barbed wire, and torn-up ground, brought away two men from an abandoned aid post, carrying one on his back. On another occasion it was largely due to his determination and grit that a camp, which was being heavily shelled, was evacuated of all wounded, when he remained till the last and saw that all was clear.

Temporary Captain Charles Edgar Wilson, R.A.M.C.

During a rearguard action he worked untiringly in the interests of the wounded, who all were safely evacuated in spite of having to pass over a long stretch of open ground exposed to fire. Through all this trying time he was cool and cheerful, showing a complete disregard of personal danger. Captain Wilson was formerly a lieutenant in the Canadian Army Medical Corps.

Captain Henry Wilson, R.A.M.C.

For five days, under all kinds of enemy fire, he showed an utter contempt of danger and disregard of self. His energy and splendid behaviour undoubtedly saved many lives, and through his powers of organization no wounded were left behind when the battalion was relieved from the line.

The Military Cross has also been conferred upon Quartermaster and Hon. Captain James Harvey Bounds, and Quartermasters and Hon. Lieutenants Henry A. C. Cole and John Robinson, of the R.A.M.C.

MENTIONED IN DISPATCHES.

Surgeon James P. Shorten, D.S.C., R.N., is among the list of officers mentioned in dispatches in connexion with services in Mesopotamia and the Persian Gulf.

The list of officers and men mentioned in dispatches for services in the action between H.M. torpedo boat destroyers *Mary Rose* and *Strongbow* and three German light cruisers which attacked a convoy on October 17th, 1917, included the name of Surgeon Probationer Ivan C. C. Barclay, R.N.V.R. (killed in action).

FOREIGN DECORATIONS.

The King of Italy has conferred the following honours upon the British members of the Royal Italian Medical Commission, in recognition of valuable services rendered for about three years in conjunction with their Italian colleagues in examining Italian recruits. *Crown of Italy.*—To be officers: Dr. T. Vincent Dickinson and Dr. James Donelan. To be Cavaliers: Dr. Andrew Morton and Dr. Andrew Currie.

Dr. Melandri, president of the commission, has been recommended for the award of a special decoration at the earliest occasion.

Scotland.

INSTITUTIONAL TREATMENT OF TUBERCULOSIS.

It appears from a statement by the Lord Advocate in the House of Commons, on August 5th, that institutions have been approved by the Local Government Board for Scotland, containing 2,570 beds for the treatment of pulmonary tuberculosis. In addition, there are some institutions approved for cases of non-pulmonary tuberculosis, but a specific number of beds is not set apart for this purpose. Information as to the total number of cases awaiting institutional treatment for Scotland as a whole is not available, but in Glasgow, on March 1st, nearly 400 cases of pulmonary tuberculosis were receiving institutional treatment. The Local Government Board is not in a position to express any opinion as to whether the duration of the period of treatment is limited by the amount of accommodation available, but it is a fact that accommodation provided by local authorities for the treatment of cases of tuberculosis has been taken over for other purposes, and the Board, after conference with the Scottish Insurance Commissioners on the subject, is about to institute an inquiry into the whole question of the sufficiency of the existing accommodation for tuberculosis cases, having regard to the number of such cases and the need for treatment.

A MINISTRY OF HEALTH.

The Corporation of Edinburgh has received a report from its town clerk on the need for the establishment of a central authority to reorganize and co-ordinate the public health services of the country. It is maintained that there should be a separate Ministry for Scotland with direct representation in Parliament. Even should the Secretary for Scotland become the Minister of Health for Scotland the new Ministry should not form a department of the Scottish Office, but a separate department of State. To the new Ministry should be transferred duties relating to matters of public health at present administered by separate departments, but its duties should not necessarily be coincident with those administered locally by the public health authorities, and these authorities should be directly elected by the ratepayers. The area of administration of the local authorities should be reconsidered, as the smaller existing areas do not possess resources to deal effectively with the large questions of public health administration. The creation of larger areas of administration may be found necessary. Certain matters should be transferred to the local health authorities from the school board, the parish council, the District Board of Control, and the Insurance Committee, and new duties should be entrusted to them in connexion with the inspection of factories, the milk supply, and the care of the blind.

CENTRAL CHILD WELFARE INSTITUTE.

At a conference of representatives of Scottish local authorities, held recently under the presidency of the Lord Provost of Edinburgh, a committee was appointed, on the proposition of the Lord Provost of Aberdeen, to prepare a scheme for the organization of a central child welfare institute for Scotland which the Carnegie United Kingdom Trust has offered to establish in Edinburgh. Dr. Ross, in explaining the conditions of the offer, said that the scheme owed its inception to Dr. Leslie Mackenzie. Dr. Leslie Mackenzie said that the problems of maternity and childhood were various, difficult, and urgent. The institute would afford help and direction to all the public authorities concerned with the administration of the notification of births, the formulation of child welfare schemes, the preparation of maternity services and hospitals, the administration of the Children's Act, and of the Poor Law and Education Acts. The institute would be a place for study, research, and conference, and a promise of £2,000 for research work in connexion with it had already been received. The trustees will find the capital outlay to establish and equip the institute, and an appeal is made to local authorities to support the maintenance fund.

ANTIVENEREAL ACTION IN EDINBURGH.

A conference convened by the Edinburgh Branch of the National Council for Combating Venereal Disease, held recently in Edinburgh, was largely attended by representatives of the women's organizations and societies in the city. Mrs. Russell, M.D., who presided, said that it was desired to bring the need for combative effort before the public and to impress upon it that it was a moral as well as a medical question. Mrs. Gotto, O.B.E., general secretary of the National Council, appealed to all women to co-operate with that organization. After a discussion showing the keen interest the women's organizations are taking in the work, Mrs. Chalmers Watson, C.B.E., M.D., said that during the coming winter courses of lectures would be given for welfare workers.

NOTIFICATION OF OPHTHALMIA NEONATORUM.

By regulations,[1] dated July 31st, the Local Government Board for Scotland has made ophthalmia neonatorum compulsorily notifiable. In a circular letter accompanying the official regulations extracts are given from the report of the Departmental Committee on the Welfare of the Blind (1917) showing the extent of blindness caused by the disease, and emphasizing the necessity for the provision of efficient treatment to follow immediately on notification. The necessity for the notification of cases at the earliest possible moment, when the discharge is first detected, is noted, and it is insisted that there should be no waiting for the appearance of a purulent discharge. It has been observed by medical officers of health that many mild cases are left unnotified because, in the midwife's view, the discharge was not "purulent." By the time the discharge is markedly purulent the disease is already far advanced and dangerous. The Board intimates that the work of health visitors, under maternity service and child welfare schemes, might properly include the visiting of cases of ophthalmia neonatorum, and the child welfare

[1] Statutory Rules and Orders, 1918, No. 856, S. 29.

grant is available in respect of this work. One paragraph of the letter reads, "To prevent injury to the eye, no strong germicidal application should be used except under the supervision or special direction of a medical man." A very necessary warning, for the temerity of the partly informed may be as dangerous to the infant eyes as the most virulent microbe.

Ireland.

TYRONE COUNTY HOSPITAL.

IN the report of the Tyrone County Hospital Dr. E. C. Thompson, F.R.C.S., states that the expenditure has been heavy owing to the great increase in price of every commodity, but this is common to every similar institution in the country and will not decrease during the war. The number of soldiers treated in the hospital was 255, and they were accommodated without inconveniencing the other patients. The total number of patients treated in the hospital was 888, and 2,934 cases were given advice as externs. The total expenditure was £5,163 9s. 8d. and the income £4,340 17s. 3d., thus showing a debit balance of £822 12s. 5d. which, along with a debt, which has been gradually growing during the last seventeen years, of £908 8s. 3d., leaves a total indebtedness of £1,731 0s. 8d., which must be liquidated quickly if the hospital is to continue its useful and most necessary work. In this connexion Dr. Thompson writes:

> I have frequently drawn attention to the strange anomaly that unlimited funds must be granted for the maintenance of asylums and workhouses, which house the useless and unfortunately worn out members of our civilized society, but very insufficient funds are provided for the treatment in hospital of the sane and useful members of the body politic, who, without institutions such as our county hospital, would suffer greatly in many ways if overtaken by severe illness requiring special hospital care or surgical attention.

Compared with the previous year the average number of patients daily in the hospital increased from 47.3 to 64.

The hospital is beautifully situated on a sheltered elevation, a short distance outside the town of Omagh. It possesses all the latest equipment of the most modern city hospital. Close on a thousand operations were performed during the year 1917; they included 21 for appendicitis, 14 for removal of bullets or shrapnel, and 25 for radical cure of hernia, 9 of which were strangulated.

Correspondence.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—It would seem that some sort of a State medical service and some degree of State aid for hospitals are inevitable in the near future. One cannot view such a prospect with whole-hearted satisfaction. A State service reflects the mental attitude of its leaders, and one fears lest absence of competition combined with the moral support of a great Government department may tend to produce a condition of eminent respectability combined with an exasperating inertia, which is better imagined than understood. Of course, organization with financial strength behind it makes for efficiency, but, at the same time, there is a grave danger lest that individuality which has been the source of our strength for centuries may become lost. From a national point of view, too, disappearance of the voluntary system of support for our hospitals would be a misfortune. In many respects the State-aided hospital of Continental cities is more complete, but a spirit is absent from it that is of the very essence of our own hospital management, and reflects a corresponding difference in national attributes. While we rightly strive to become more efficient, let us be on our guard lest we become at the same time less sympathetic.

As a profession, doctors are all day long placing the benefit of their patients in front of their own benefit. Therein lies, however, the first stumbling-block; for occupation with a sick man forces consideration of the disease from which he suffers into the foreground or into the background, according to a number of circumstances of which the mental characteristics of the physician and the amount of time at his disposal are the chief. Financial considerations occupy a necessary but a completely subordinate position. From this follows differentiation of the profession into the two great branches of practice and investigation. Considered in the abstract, there is no doubt that preventive measures against disease are more beneficial to a nation than curative measures, but recognition of this fact seems to require a special intellectual capacity. Even now, however, the attitude towards science of most laymen in His Majesty's dominions is about on a par with that in respect of their attitude towards education generally. Possibly this attitude is changing, but it must change far more rapidly and extensively among us if preventive medicine is to have a fair chance. It is dangerous in these days to see anything good in the Germans, but it is none the less true that their respect for science and their scientific organization in all branches are the real foundation of the power they exert in things military as in things medical. If the Americans and the Japanese thronged German universities, as they undoubtedly did before the war, it was because the scientific spirit in our allies, which lies behind the practice of medicine, was well nourished in Germany. Chemistry, physiology, pharmacology, pathology, must cease to be regarded as "ancillary" subjects; it must be recognized that radiology means vastly more than the taking of *x*-ray photographs; entomology must no longer be smiled upon if preventive medicine is to take that position in human affairs which Sir Bertrand Dawson contemplates. In France, in the United States, in Italy, in Japan, in Germany, in Austria, this emancipation took place long ago. Just as in the past the physician had to yield a portion of the dignity of medicine to the surgeon, and as both of these had to yield to the gynaecologist, the laryngologist, neurologist, oculist, so the art of medicine is being compelled to render just honour and recompense to the science of medicine, and cease to exploit that science for its own benefit. And in the same way, if progress is to be made, our non-medical and non-scientific legislators and business men, must be compelled to render just honour to that branch of knowledge whose duty and privilege it is to care for the health of mankind. It is scandalous that apathy and departmental obstruction should stand in the way of creating a Ministry of Health, but so long as the doctor is regarded as a subordinate, legislation will pooh-pooh what he says, and so long as the practising physician or surgeon regards the scientific basis of medicine as subordinate, he will not possess that knowledge which alone entitles his opinion to respect.

The suggestion that members of the junior staff of the teaching hospitals should largely devote themselves to research is admirable, but less easy of accomplishment than appears on the face of it. Those whose duties have lain in the research laboratory know that the investigator is born and not made. That a born investigator may be ruined by lack of training in methods and aims of exact research is undoubtedly true, but unless the spark be there, no amount of training will produce more than a machine. Germany has turned out thousands of such machines, and though they are useful in getting hackwork done, our British habit of mind is against their production. It would be far more profitable to present a man who wished to conduct investigation, and, after trial, was found capable of doing so, with opportunities to make a living independent of practice. There can be no doubt, in pathology at least, that our lack of investigators depends solely upon the fact that science does not pay a living wage. To regard research as a kind of finishing education for a young physician or surgeon who wishes to attain distinction in his profession is not the way in which real advance of medicine will be brought about.

Sir Bertrand Dawson recognizes a differentiation between practice and research in his suggestion that the clinical hospitals should be under the Minister of Health, and the teaching hospitals under the Minister of Education. Such a divorce appears undesirable for three reasons: (1) It would lead to lack of co-ordination; (2) it would place science under (probably) a non-science domination; and (3) the teaching and research carried out in hospitals under a Minister of Education would tend to become academic and purely theoretical, whereas under a Minister of Health this is less likely to occur. To my mind it is not divorce between practice and investigation, cure and prevention, science and art, that is required in

medicine; it is a closer co-operation. The scientific worker must cease to live entirely in his laboratory, and must be brought into the wards to meet the physician or surgeon on terms of equality in all respects.—I am, etc.,

W. S. LAZARUS-BARLOW.

The Middlesex Hospital, W., July 23rd.

SIR,—That the industrial classes do not get, and have never had, adequate medical attention, except in the hospitals, is being recognized, owing to the present stress, but it is nothing fresh or new. The reasons are:

1. There is too much rush about working-class practice, too little time for laborious diagnosis, with frequent examination and reconsideration of patients; hence too little genuine medical interest.

2. There are not enough medical men (even in pre-war days) for industrial practice to be carried on in the manner indicated, and the "wages fund" for doctors is too small to pay the doctors, even if they existed.

3. Medical men are not keen enough on the problem of maintaining the health and working efficiency of the industrial classes. Seeing the way medical men are and have been sweated by workers relatively so much better paid than themselves, this is not surprising.

4. The workers themselves are not very interested in the wider aspects of the problem of their health. The workers have never organized a strike against bad housing conditions, bad factory conditions, dangers of industrial poisoning, or the laxity of local sanitary authorities.

The workers themselves are apparently content with things as they are; if by chance they really want the best brains of the rank and file of the medical profession to look after them, they must see to it that the doctor's life is one of medical practice, and not one of rushing through so many patients a day; hence, more doctors with more time. A State medical service for practice in industrial centres could be made very attractive. A post-graduate course every few years, constant working with research and other special centres, the requirement of a high standard of diagnosis and treatment, and the possibility of securing the latter for the patients, would be great inducements to young men to enter the service.

The service, like all services, would retain an element of competition, but would get rid of the type of competition which is a hindrance and not a help to the practice of medicine.—I am, etc.,

Folkestone, Aug. 8th. T. M. PEARCE.

THE LABOUR PARTY AND THE MEDICAL PROFESSION.

SIR,—I notice references by members of the medical profession to the supposed attitude of the Labour party upon the future organization of the profession. In particular, it has been said that the Labour party is in favour of a State medical service. Will you permit me to say that no such statement is correct. The Labour party expresses its corporate views by the numerous resolutions of its party conferences, and by the publications founded on these resolutions issued by its Executive Committee. In none of these is there any countenance of what I understand to be objected to—namely, a whole-time, salaried, clinical service for the general population; least of all, such a service organized and directed by a State department.

What is true is that the Labour party is distinguished from the older political parties by its persistent concern about the health of the people, and the need for giving the medical profession more effective opportunities than it is now allowed for rendering its services to all who need them. At present, urge the delegates to the Labour party conferences, so far as vast numbers of labourers and their wives and children are concerned, the doctor, whether in the town slum or in the rural village, does not get a fair chance. Beyond general resolutions calling for reform, the Labour party has not yet committed itself in this matter to any plan. What it has done is (again unlike any other political party) to appoint a Standing Advisory Committee, made up of medical practitioners and such other competent persons as it can find among its supporters, to counsel the party on "public health and medical services."

What is being said is that the present defects of the National Insurance Acts must imperatively be remedied, notably the exclusion from medical benefit of half the population, even of the wage-earning class; the limitation of the treatment afforded to such as is within the ordinary scope of the general practitioner; the lack of provision of the means of scientific diagnosis, consultants, specialists in medicine, and surgeons, wherever these are required; the cruel parsimony as regards drugs and appliances; the failure to provide the panel practitioner with suitable accommodation and assistance for his increased work; and the general insufficiency, in nearly all parts of the country, of the hospital and sanatorium provision, and of the domiciliary nursing service.

On the other hand, the Poor Law provision for the sick and infirm—soon to be merged, it must be assumed, in the public health work of the local authorities—and the growing development of the medical services of these authorities, whether as regards hospitals, sanatoriums, venereal disease clinics, schemes for maternity and infancy welfare, or the school medical service, necessarily call for an extensive reorganization of what may be termed the municipal medical service.

Some of the members of the Labour party are looking for a great development of the medical service under the Insurance Acts, making this the main organ of the Ministry of Health on the clinical side. Others expect the boundaries to be extended more, especially in connexion with the increased provision of hospitals, of what I have called the Municipal Medical Service. Few of us, I think suppose that either of these can cover the whole field without the aid of the other, or both together without the full and cordial co-operation of the independent medical practitioner dealing with his own clients. It must be plain that (even apart from other considerations) it would be quite impracticable, over the greater part of the United Kingdom—probably everywhere outside the towns—to engage the medical practitioners in a whole-time, salaried, clinical service; as such a service would leave no doctors available for the fee-paying part of the population. And I cannot imagine any practical politician dreaming that, as matters go in English politics, both the machinery of the National Insurance Acts and that of the all-powerful local governing bodies could simultaneously be superseded by any State army of salaried clinicians operating, like the R.A.M.C., from a central head quarters, and working in conjunction with an array of State hospitals and sanatoriums, administered, like the prisons, by a Government department in Whitehall.

What we in the Labour party are trying to discover is the best way of bringing into effective co-operation with the rest of the work of the medical profession both the system inaugurated by the National Insurance Acts, with all desirable improvements, and that of the local authorities, now being so rapidly extended under the Public Health Acts. The Ministry of Health Bill we regard as but the beginning of this indispensable co-operation of the whole profession.

We have been for some time basing our scheme on a more effective representation in the counsels of the nation of the medical profession itself; meaning by this the opinion of the general practitioner even more than that of the consultant, the official expert, or the professor of the medical college. We should heartily support the proposal just adopted by the British Medical Association of an Advisory Medical Council attached to the Ministry of Health, without executive powers, but authorized to report to the public, uncensored by the Government, upon anything done or undone in the realm of public health. And we are inclined to go further. We suggest that every town council should have a similar Advisory Medical Committee, made up from the practitioners of the town, and entitled to make its recommendations either privately to the Health Committee or the town council, or whenever it thinks fit, also publicly to the citizens, uncensored by the town clerk or the municipality.

In short, many of us in the Labour party who are thinking about this problem of the future organization of public health and the medical profession are disposed to place great faith in bringing constantly to bear on all such questions the organized opinion of the medical profession as a whole, both nationally and locally; and we should make a central feature of our plan the statutory constitution

of such Advisory Medical Councils as I have mentioned, both to the Ministry of Health and to the local health authority.—I am, etc.,

London, S.W., July 28th. SIDNEY WEBB.

THE SYSTEMATIC TESTING OF URINE IN THE EXAMINATION OF RECRUITS.

SIR,—In view of the fact that middle-aged men are now being pressed into military service, the majority of whom will have long since passed into the fixed groove of sedentary employment, a note on the importance of the systematic examination of the urine in these cases may not be out of place.

A tall and powerful young athlete, a champion runner, came to me some years ago in great alarm because his urine was "half full of a red sediment." His story was, that after a winter of comparative physical inactivity, in which he had devoted the majority of his time to violin practice, he had suddenly made up his mind to get into training for some coming races, and had accordingly gone out in the previous afternoon and sprinted violently for two hours, taking only short intervals of rest. On returning home and desiring to pass water, but feeling too tired to go up to the lavatory, he urinated into a glass jar. An hour or so later, remembering to empty the jar, he was horrified to find it half full of the "red sediment."

In this case it is interesting and instructive to reflect on what was taking place in the tissues, and especially in the kidneys, during that afternoon's sprinting. To consider, for instance, the rapidity of the tissue change, the furious katabolism, and the marvellous activity of the kidney cells in so quickly ridding the tissues of what must otherwise have been of infinite danger, had the kidneys from any cause been less active. And the question arises of what would have happened in this case had this sprinting taken place in the first full vigour of *apparent* health after a convalescence from fever; whether the kidneys, lowered in vitality by the toxins and high temperature, would have been equal to the task—the terrific work so suddenly thrust upon them—or whether a splendid young manhood would have been struck down in acute toxaemia, and the health for ever shattered in one or other of the chronic ailments or diseases—neural, cardiac, articular, or dermal—the etiology of which is sometimes so difficult to discover.

There are, perhaps, few people who have not noticed after a day's exercise, such as the first of a holiday, that the urine becomes cloudy, sometimes depositing a sediment; and if the specific gravity be taken it will often be found much in excess of normal. In the healthy this is as it should be. There are those, on the other hand, whose urine after exercise, vigorous or moderate, is clear as though drawn from the tap, and of specific gravity much below normal, sometimes falling to that of pure water. It is in such cases that a day's unusual exercise, especially in the middle-aged, will frequently be followed by vague rheumatic pains, headache, malaise, tachycardia, or its opposite, sometimes so acute as to necessitate remaining in bed. Such opportunity of recuperating is, however, not granted to the recruit until he becomes acutely ill, and the result is that the medical wards of our military hospitals are to-day crowded with patients with nothing more the matter with them than could be traced to defective eliminative power on the part of the kidneys. Men with kidneys of this type are absolutely unfit for military training and are proving, and will prove, little else but an expense and a burden to their country.

It was, of course, impossible in the early days of the war, and especially during the compulsory recruiting in the later months of 1915, to examine the urine in every case, but now that comparatively few are left out of the ranks between the specified ages who are physically fit, and that rejected men are being constantly re-examined, and, above all, that men of 50 are now to be included, it becomes of paramount importance that the urine in each case should be carefully tested. Medical boards would, therefore, do well to make it a routine part of the examination of every recruit, whose general condition appears to be satisfactory, to examine the urine immediately before and some hours after his being put through the stress of muscular exercise, moderate or vigorous according to his capacity, and if the urine does not show an increase in specific gravity corresponding to such exertion—for little importance need be attached to the physiological albuminuria which will appear in some cases—it may be taken for granted that such recruit, though he may keep up for a time, will end in a military hospital a useless burden to his country.—I am, etc.,

Liverpool, July 20th. WILLIAM BRAMWELL.

GENERAL PRACTITIONERS AND VENEREAL DISEASE.

SIR,—I read with great interest your remarks on the above-named subject in your issue of August 3rd. Perhaps it would not be amiss that I should attempt to put before you some of the difficulties which beset the general practitioner in this connexion:

1. The acquisition of the necessary knowledge and technique entails regular attendance at a clinic for months together; this a busy practitioner can ill afford in these strenuous days.
2. Equipment, even on a modest scale, means a considerable initial outlay, particularly when enhanced values are the order of the day.
3. Diagnosis and treatment cannot be satisfactorily carried out at the practitioner's surgery during his ordinary hours of attendance; the routine takes up a considerable amount of time, even if assistance is available, which usually is not the case.
4. Remuneration: Under present conditions the practitioner would receive no extra fees for the treatment of insured persons; nor would he from his poorer patients.

The practitioner is of necessity compelled to advise his panel and poorer patients to seek assistance elsewhere. For my own part, I have for nearly two years been attending the clinics at Rochester Row and the London Hospital, and, to my chagrin, I have discovered that I cannot undertake to treat in private the two classes of patients I have mentioned, chiefly for reasons (2) and (3).

What, then, is the solution of the problem? It seems to lie in the establishment of clinics to which practitioners may have free access. Such freedom of access sounds rather attractive, but it remains to be seen how it would work in practice; none the less, a good deal can be accomplished by co-ordination and co-operation.—I am, etc.,

London, W., Aug. 5th. JOHN ALCINDOR, M.B.

THE DANGER OF COAL RATIONING.

SIR,—The doctors of the country have not been invited to consider a matter which vitally affects the health of the nation, and, if the order as it now stands comes into force, irremediable and widespread damage will be done to the health of a large number of persons.

As the instance of which I have most knowledge I give my own case. We live in a house of twelve rooms under Schedule A, therefore we may receive up to twelve tons in the year. This means 73 lb. a day. An ordinary kitchen coal-scuttle holds 34 lb., therefore we can burn just over two scuttles of coal a day. This means that (1) the kitchen fire can only be burnt for sufficient time to cook one hot meal a day; (2) a small fire can be burnt in only one other room. Under these conditions the house will become so cold throughout that it will be dangerous to health in winter. Two members of the household are working long hours at work involving much exposure to cold, and a return home at, necessarily, different and irregular hours for meals.

The present food does not provide so high a heat value as formerly, and most people are working longer hours under harder conditions than formerly. The number of deaths from tuberculosis has already risen seriously. Presumably this is due to the harder conditions of life. If, in addition, cold houses and cold meals are to be the rule, the nation will be sowing the seeds of such a death-rate from tuberculosis as has not been known for years, and the increased amount of illness of every kind will subtract many hours from essential war work. The appalling increases of the tuberculosis death-rate in enemy countries should be a warning of what will come.—I am, etc.,

Malvern, Aug. 8th. E. G. H. WILLIAMS.

As a result of the garden party given by the Royal Medical Benevolent Fund Guild at the Royal Botanic Gardens, on July 16th, a net sum of £1,350 has been paid over to the special fund for training girls to be self-supporting or to assist their mothers. This very satisfactory result will probably encourage the Guild to repeat the experiment another year.

Universities and Colleges.

UNIVERSITY OF LONDON.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

THE following awards of scholarships tenable at the Medical School have been made recently:

St. Dunstan's Medical Exhibitions: Miss M. E. Reynolds, £60; Miss M. E. Howard, £40 (for five years each). Isabel Thorne Scholarship (£30): Miss E. A. Perrott. Sir Owen Roberts Memorial Scholarship (£75 a year for four years): Miss L. G. Iliff. Mabel Sharman Crawford Scholarship (£20 a year for four years): Miss D. N. L. Leverkus. Agnes Guthrie Dental Bursary (£50): Miss Petronelle Jago. Ellen Walker Bursary (£25 a year for two years): Miss G. M. Watkinson. Fanny Butler Scholarship (£14 10s. a year for four years): Miss A. D. Symons.

UNIVERSITY OF DUBLIN.

Trinity College.

THE Senate of the University of Dublin has passed a grace for the degree of LL.D. *honoris causa* for Lieut.-General Charles Henry Burtchaell, C.M.G., C.B., Director-General Medical Services, B.E.F., France. It is hoped that the degree may be conferred at an early date.

The Board of Trinity College has invited Lieut.-Colonel Gordon Holmes, M.D., C.M.G., R.A.M.C., to deliver the Montgomery Lectures in Ophthalmology for the year 1918–19.

Obituary.

MR. W. MORLEY WILLIS, who died in June last, aged 49, was a native of Bristol, and was educated at the Taunton Grammar School. After a few years in business he decided, on reaching the age of 21, to study for the medical profession. He studied at University College, Bristol, and St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. in 1895 and the F.R.C.S. in 1906. After acting as house-surgeon to the Sunderland Royal Infirmary, he commenced practice in Nottingham in 1897. Shortly afterwards he became honorary surgeon to the Children's Hospital, and in 1901 was appointed assistant surgeon to the Nottingham General Hospital. Soon afterwards he abandoned general practice, and confined himself entirely to surgery. In addition to the work entailed by his public appointments, Mr. Willis undertook heavy duties in connexion with the various military hospitals in the Nottingham area. While in apparently good health he was struck down by an illness which proved fatal. He leaves a widow and two daughters. Mr. H. Bell Tawse, senior surgeon to the Nottingham Children's Hospital, assistant surgeon to the Nottingham General Hospital, writes: For many years I was associated with the late Morley Willis at the Children's Hospital and at the General Hospital. We all recognized him as a brilliant surgeon, a skilful diagnostician, and a most agreeable, kindly, and courteous colleague, always ready to give help and advice in difficult cases, and eager to assist the younger men in any way he could. He will be greatly missed by his colleagues and by his patients, who loved him for his cheery optimism and charming manner. He has gone at a time when his surgical talents and experience were invaluable to the army as well as to the civil population. He was reaping the reward of many years of strenuous hospital work, and had built up a large surgical practice when he was struck down at the early age of 49 by illness which proved fatal. British surgery has sustained a grievous loss, and his intimate friends mourn the death of a most affectionate, straightforward, and honourable man.

IT is with regret that we have to record the death of DR. FINGLAND, which took place somewhat suddenly on August 1st. Four years ago he had a serious attack of influenza followed by pneumonia. Nevertheless, he braced himself to continue in practice, and up to a week before death he was doing his work. He was the son of a well-known pharmaceutical chemist in Wavertree. He received his medical education at the Liverpool School, and took the diplomas of L.R.C.P. and S.Edin. in 1891. He devoted special attention to anaesthetics, and became honorary anaesthetist to the Royal Infirmary, which post he held for upwards of twenty years. Four years ago he retired with the honour of consulting anaesthetist to this institution. In 1912, at the Annual Meeting of the British Medical Association, Dr. Fingland was vice-president of the Section of Anaesthetics. He published in the *Edinburgh Medical Journal* in 1893 a practical paper on the treatment of a patient before and after an anaesthetic. As an anaesthetist his services were in much demand, and many of his professional brethren are personally indebted to him for his careful conduct of anaesthesia. He was a member of the North of England Obstetrical Society, and at the time of his death held the post of treasurer. He had long been a member of the Liverpool Medical Institution, and was its librarian. Dr. Fingland in private life was most methodical, and was fond of old prints and books. As a colleague he was staunch and in his friendship true. A memorial service was held at St. Andrew's Church of Scotland on August 5th, and many friends and patients were present as a testimony of their respect. He leaves behind a widow and daughter and many professional brethren to mourn his loss and cherish his memory.

DR. GEORGE BLACKER MORGAN, of Sunderland, who died on July 25th, aged 84, received his medical education in Dublin and took the diploma of L.R.C.S.I. in 1856 and that of L.S.A. in the following year. He was appointed house-surgeon to the Sunderland Infirmary in 1857, and had since continued his connexion with that institution, latterly as senior surgeon and chairman of the medical board. He had held the office of chairman of the Sunderland Division and was twice president of the North of England Branch. He had also been president of the Northumberland and Durham Medical Society and of the Sunderland and North Durham Medical Society. He leaves a family of three sons and four daughters.

Medical News.

THE Household Fuel and Lighting Order, 1918, contains a provision authorizing the local Fuel Overseers to make additional allowances for both fuel and light in the case of rooms used for a business or profession in a dwelling house or other building in connexion therewith.

THE London County Council has decided not to provide serum for the general use of medical practitioners in the treatment of cerebro-spinal fever and the examination of suspected cases and contacts, but to provide it for use exclusively in cases seen in consultation with its own medical staff.

DR. J. JOHNSTON, Medical Officer of Townleys Hospitals, Bolton, has received the long service silver medal of the Order of St. John in recognition of his twenty-seven years' service to the St. John Ambulance Association and Brigade.

THE report on the working of the tuberculosis department started at the Great Northern Central Hospital, by arrangement with the Islington Borough Council, shows that during the year ended April 30th last 841 cases from the northern half of the borough were treated, and that there were 3,472 attendances. In addition, 1,510 visits were made to patients' homes, and a considerable number of contacts examined.

AT the meeting of the Council of the Metropolitan Hospital Sunday Fund on August 9th it was announced that the total sum received was £85,652, an amount exceeding the previous best year by £15,000. The sum included a gift of £5,000 from the American Red Cross Society. The awards for the year amounted to £85,000.

IN connexion with the scheme for the employment of officers and men invalided from the army and navy it has been suggested that in cases of shell shock, gas poisoning, and general breakdown, such men as contemplate life in the Far Eastern colonies and dependencies would be well advised first of all to submit themselves to some medical expert from the tropics. By doing so, expense and disappointment would be avoided.

MR. WILLIAM MILLER CROWFOOT, M.B.Lond., F.R.C.S., who died at Beccles last April, at the age of 80, bequeathed his collection of exotic butterflies and moths to the Natural History Museum, University College, Nottingham; a collection of shells from the Paris basin, his crag shells, and other fossils, to the Norwich Museum; and a collection of shells from the Italian Pliocene basin, and a collection of marine, land, and fresh-water shells to Ipswich Museum.

THE London County Council has agreed to ask the governing bodies of one or two hospitals to admit as in-patients school children suffering from serious ear trouble.

The Education Committee reported that more than 12,000 children with discharging ears are in attendance at school. Some 7,000 children have easily appreciable deafness, and, in addition, 800 children attend deaf schools or "hard of hearing" classes. About 800 children of school age die in London annually from diseases closely associated with ear disease.

THE twenty-seventh French Congress of Surgery will be held in Paris in October (7th to 10th). The following are the questions officially proposed for discussion: Extraction of intrathoracic projectiles; treatment of remote results of nerve lesions caused by war projectiles; removal of splinters and repair of losses of bone substance. There will be no introductory reports on these subjects. The general secretary of the Congress is Dr. J. L. Faure, 10, rue de Seine, Paris, from whom any further information can be obtained.

THE Ministry of Munitions has made an order prohibiting the sale, except under licence, of radio-active substances, luminous bodies and ores. The order applies to all radio-active substances (including actinium, radium, uranium, thorium and their disintegration products and compounds), luminous bodies in the preparation of which any radio-active substance is used, and ores from which any radio-active substance is obtainable, except uranium nitrate and except radio-active substances at the date of the order forming an integral part of any instrument, including instruments of precision or for timekeeping.

A NEW edition of *The Nomenclature of Diseases* has been issued (H.M. Stationery Office; 2s. net). All the editions have been prepared by joint committees appointed by the Royal College of Physicians of London. The first was completed in 1869, the second was published in 1884, the third in 1896, and the fourth in 1906. The secretary and editor of the committee of the new edition was Dr. Leonard Guthrie. It had numerous subcommittees dealing with diseases of various systems. Among the changes introduced in the new edition is the substitution of the term "diseases caused by infection" for "infective diseases," and three new groups have been formed for diseases of the blood, and of the ductless or endocrine glands, and for disorders of nutrition or metabolism. The lists of tumours, parasites, and malformations have been rewritten and numerous additions made. A difficulty has been encountered in the nomenclature of diseases of the nervous system, which include a large and heterogeneous group at present only to be classified as "names of symptoms, groups of symptoms, diseases named with reference to their symptoms, and diseases of which the pathogenesis is not accurately known."

A REVISED version of the regulations under which grants are payable by the Board of Education to day nurseries in England and Wales has been issued (Cd. 9129. Price, 1d.). The revision provides for the payment of a grant at a rate not exceeding 50 per cent. of the net expenditure after deducting any payments made for the care of children, and other similar receipts. The increased grants payable during the current financial year will be based on the expenditure incurred during the twelve months ending on March 31st, 1918. In fixing the rate of grant the Board will have particular regard to the provision for the medical inspection and supervision of the infants and young children, the number and qualifications of the staff, the provisions for promoting physical welfare and the prevention of infectious diseases, the suitability of the premises and equipment, and the methods adopted for confining the benefits to infants and young children who, by reason of the necessary absence of the mother at work or other similar cause, cannot be adequately cared for at home.

THE Royal Society has arranged a conference of representatives of the allied nations to meet on October 9th in London to discuss the future conduct of scientific work hitherto carried on by international organizations. It is expected that representatives from the academies of Paris, Rome, Tokyo, and Washington, and nominees of the Governments of Belgium, Portugal, and Serbia, will attend. The conference will chiefly be concerned with those departments of science in which international co-operation is most essential, such as mensuration and electric standards, geodesy and seismology, and the photographic chart of the heavens. Among other matters which will have attention are international meetings of mathematicians, geologists, and botanists, and the work of the International Association of Academies, which aims at co-ordinating the activities of international undertakings and organizing work for which special bodies do not exist or are not required. The main object of the conference will be to agree on a common policy with regard to matters which depend on Government support.

Letters, Notes, and Answers.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

AUTO-WHEELS.

DR. T. REUELL ATKINSON (Chadwell Heath) writes, in reply to "Aloin," to call attention to a note by himself in which he spoke well of the auto-wheel (BRITISH MEDICAL JOURNAL, December 9th, 1916, p. 828). Wet weather, he adds, makes no difference provided one does not clean one's own machine; it picks up dirt. Against a strong wind a little foot pedalling helps, but requires really no effort. It takes moderate gradients easily enough, but help with the feet is needed on very steep hills.

DECLINE OF THE BIRTH-RATE.

CUSTOS wishes to know whether, apart from the subject of eugenics, there exists a society which interests itself in means for arresting the decline in the birth-rate, especially in the middle and upper classes, which could give him information capable of being worked into a lecture or pamphlet for the young officer class.

*** Our correspondent might write to the Secretary, National Council of Public Morals, 20, Bedford Square, W.C.1. This body has, we believe, collected much information of the kind desired. "Custos" must, however, use his own judgement as to the scientific value of the literature in question.

LETTERS NOTES, ETC.

LONDON'S MEDICAL SHERIFF.

DR. CLIPPINGDALE (London, W.) writes: The election of Dr. W. R. Smith, professor of toxicology in King's College, to the shrievalty of London exemplifies the rarity with which medical men have been elected to the highest civic posts within the City of London. Such elections in former times were always made by the twelve upper livery companies, which did not include the two semi-medical bodies—namely, the Apothecaries and the Barber Surgeons. The late Sir Thomas Crosby was the first and at present remains the only medical man to hold the office of Lord Mayor. Sheriff Smith in the honour he has accepted seems to have had only two medical predecessors—Thomas Horesbede (surgeon to King Henry V), who was sheriff in 1436, and Sir John Aylife (surgeon to King Henry VIII), who was sheriff in 1548.

THE BELL FUND.

DR. S. A. KINNIER WILSON asks us to acknowledge the following donations to the Dr. J. H. Bell Fund: Sir Hugh Rigby £10 10s., Lieut.-Colonel E. Farquhar Buzzard £5 5s., Dr. David Dinwoodie £1 1s., Captain Ralph R. Watts, R.A.M.C., £1 1s. Subscriptions should be sent to Dr. Wilson at 14, Harley Street, London, W. 1.

SEPTICAEMIA DUE TO MIXED INFECTION.

A Correction.

THE bacillus found in the blood of the case recorded by Dr. B. Henry Shaw (BRITISH MEDICAL JOURNAL, August 10th, p. 133), of a man suffering from septicaemia, was the *Bacillus septus*, or *B. coryzae segmentosus*, not, as printed, the *B. septicus*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.